Medical Times

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Medicine and Surgery in Ancient Egypt

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London, Eng.

The ancient Egyptians have been credited by some writers with a wide and profound knowledge of medicine, and by others with next to no knowledge at all.[1] Between these two extremes the truth must and does lie. A nation which had evolved sufficient knowledge and skill to produce modes of art and feats of engineering and architecture as old as and indeed far older than, the Pyramid Age (i.e., the third millennium before Christ) and who had mathematical knowledge involving abstruce calculations and an acquaintance with mensuration, cubic capacity, angles, fractions and the principles of the square root, must have been and actually was, far ahead of all its contemporaries in mental achievements.[2] Time has spared us not only actual proofs of what the Egyptian could do, but in addition a mass of contemporary documentary evidence. As regards medicine and surgery we have fortunately a relatively large number of documents, written in the curative script known as *hieratic* upon rolls of papyrus.

From these principally we must reconstruct our knowledge of Egyptian medicine, but as we shall presently see, they are not our sole source of information.

I. The Medical Papyri

(I) The largest and most famous of these documents is the celebrated *Ebers Papyrus.* This papyrus, which is now preserved in the University of Leipsig, was actually written in the first part of the XVIII. In Dynasty (about 1550 B.C.) but on philological and other grounds there is abundant evidence that it was copied from a book, or series of books, many centuries older, indeed it is specifically stated in the document itself that some parts of it date from the reign of a King of the 1st Dynasty. Another prescription is stated to have been made for a Queen of the sixth dynasty, but the work as a whole is certainly as old as the XIIth dynasty (about 2000 B. C.) and may be far older. It consists of a long series of prescriptions for numerous named ailments, specifying the drugs used, the quantities of each, and often the method of administering mein. Other sections deal not only with the treatment, but with the the diagnosis of certain diseases, and as a proof that the document was intended as a practical handbook for the physician, many passages have explanatory glasses to make their meaning clearer. The Ebers Papyrus is manifestly an assemblage of what were once separate books, each dealing with a separate subject, interspersed with magical incantations, and more or less detailed descriptions of diseases of certain parts of the body. It covers 110 pages or columns in the original roll, which a modern editor has conveniently divided into 877 numbered prescriptions and sections.[3]

(II) *The Berlin Medical Papyrus* was written somewhat later, but likewise betrays its ancient origin. It is similar in its general makeup to the Ebers Papyrus, but is shorter and consists of 204 sections.[4]

(III) *The Hearst Papyrus,* which is now in California, is of about the same age as the Ebers Papyrus and consists of 18 columns containing 260 sections.[5]

(IV) *The Kahun Medical Papyrus* is older than any of the above and was written in the 12th or 13th dynasty. It deals with one topic only—gynecology, and consists of 34 prescriptions.[6]

(V) *The London Medical Papyrus* is in a very fragmentary condition, but sufficient can be deciphered to show that the partakers of the same nature as the others, except that it contains a greater proportion of purely magical matter. It contains the carbonates of King Cheops, the builder of the Great Pyramid, and although the actual document is dateable to the XIXth dynasty its ultimate origin may be a thousand years older.[7]

(VI) *Other Documents.* In addition to the above, two other papyri, but as these have not yet been pub-

lished, it is premature to speak of them. The *Edwin Smith Papyrus* which deals with surgery, we will refer to in a later section. A Veterinary papyrus fragment dealing with diseases of animals was found at Kahun [8] and a series of magical papyri scattered throughout various museums, principally those of Leiden and Turin, although not strictly medical in character afford some interesting details. We may also refer to the *Berlin Papyrus No. 3027* which contains a number of spells and prescriptions for mothers and their babies,[9] and the *Western Papyrus*, also at Berlin, which, although not concerned with medicine at all, being a collection of popular stories, dedicated in graphic detail the birth of triplets.[10] As a supplementary source of information we have to draw upon such medical facts as can be found in the general literature, the tomb-scenes and inscriptions preserved in Egypt and in modern museums. Finally it may be mentioned that in the Louvre collection is a limestone flake or *ostracon* inscribed with several prescriptions for the ear, and in the winter's correction is a similar fragment.

II. Mummification

The practice of embalming the dead in ancient Egypt had a great influence on the growth of medical science. Not only did it familiarize the Egyptians with much of the internal structure of the body, but it made them acquainted with the antiseptic properties of many balsams, gums, and resins, and likewise with the properties of soda, salt and natron. It gave the first opportunities for the foundation of comparative anatomy, and familiarized its practitioners with the analogies between the organs of the human body and those of animals, the latter long familiar to them from the practice of cutting up sacrificial animals. It is an interesting fact, not previously noticed, as far as I am aware, that various hieroglyphics representing the internal organs of the body, are the organs of animals, not of human beings, showing that their knowledge of the internal anatomy of animals was older than their knowledge of human anatomy.

Thus in the word for "heart" the determination sign is the heart of an ox, not of a man: the word for "throat" is determined with the head and windpipe of an ox. The sign for "ear" is a mammation ear, the sign for "tooth" is an animal's tusk, and so on. Other signs borrowed from mammation anatomy found amongst the hieroglyphics include the liver, the mammae and female genitateia, the heart attached to the trachea and others.

Mummification, however, had its most important effect in familiarizing the mind through thirty centuries with the idea of cutting the human body. Egypt made it possible for the Greek physicians of the Poolemaic age to begin in the first time the systematic dissection of the human body which popular prejudice forbade in all other parts of the world.

From the scientific investigation of mummification, a branch of inquiry which was created by Prof. Elliott Smith, a great harvest of knowledge has become available as to the technical processes employed by the embalmers and of the deductions which can be drawn therefrom. All of this is of the highest importance in the history of medicine, but it is too wide a subject to be discussed in this sketch. The reader must refer to the numerous monographs in which Professor Elliot Smith has recorded his observations, or to the more popular summary of them contained in a recently published volume in which the present writer has the privilege of collaborating.[11] In this volume will also be found a collection of pathological cases observed in mummies, including interalia, such interesting manifestations as Pott's disease, gall-stones, appendicitis, talipers, Bilharzia infection, rheumatoid arthritis, gout, mastoid disease and various other infections of the bones.

With these few remarks we must dismiss the subject of mummification, although the treatment of the brain, of the viscera, and the special attention paid to the heart are all of great medical interest. It may also be mentioned that the first known use of the surgical ligature is found in a mummy of the 18th dynasty, where the embalming-incision was sewn up with a strip of fine linen.

It was a practice rarely resorted to, and only a few cases have been found; the general practice was to leave the wound gaping and to cover it with a plate.

FIGURE 1

Figure 1 represents a 21st dynasty mummy with the embalming-wound sewn up with a string.

III. The Nature of Egyptian Medicine

There cannot be the slightest doubt that Egyptian medicine had its origin in magic, and that magic never completely lost its hold upon its offspring. The Ebers Papyrus for instance opens with a long incantation which is intended to impart efficacy to the remedies and prescriptions which follow. Many of the drugs used in Egyptian medicine obviously found their way into the pharamcopoeia originally for magical reasons, even when quite wholesome and rational, and others are stated to be inventions of the gods. From a study of the medical papyri it emerges quite clearly that disease was believed by the Egyptian to be the result of possessing spirits, which had to be coaxed, charmed or forcibly driven from their unwilling post. It is originally only in cases of illness or injury where the cause is quite palpable and has an obvious manifestation that purely rational methods of treatment are employed. Thus wounds, for instance, which are inflicted by human agency are dealt with by human and rational methods of treatment, but illnesses which had no such obvious external manifestation as burns, cuts, sores or fractures, were generally dealt with by magical as well as medical means.

The simplest method was the recital of a spell or incantation in which the demon was bidden to be gone. Directions are often given as to how the spells are to be delivered. "To be recited at eventide, when the sun is setting" is such a direction; to be recited over a cord in which seven knots have been tied, and so forth. The magical papyri are full of such formulae, and the direct connection between Egyptian magic and medicine is very manifest, as Dr. Gardiner has pointed out [12] in the fact that "the medical books are seldom free from incantations, and the magical papyri are leavened with medical

prescriptions." Some illnesses are stated in the medical papyri to be due to magic, and one prescription in the Ebers papyrus is headed "to banish magic from the body." Others are stated to be due to the influence of "a dead man or a dead woman" or to a spirit of foreign origin such as negress or the "Asiatic woman who steals in secretly in the darkness with her nose turned backward and her face averted." Such spirits either resided in the body of the afflicted patient, or else injected therein some evil emanation, such as their sweat, their urine, or their semen.

Once having taken up their possession, the spirits made the patient ill, and had to be speedily ejected. This ejection was effected either by means of spells and incantations as mentioned above, or by administering medicine to the patient. Instead of the simple phrase "Prescription for curing," such and such a disease, we always find "Prescription for driving out," "banishing," "expelling" or "terrifying" such and such a disease. In this notion of possession is very manifest. This notion will account for the fact that many of the medicines contained ingredients of a very foul or offensive nature, and were deliberately made as unpalatable as possible for the possessing spirit. Other drugs again are emetics or strong purgatives and were evidently intended to expel the spirit with the excretory product of the patient. Again, the magical nature of the prescriptions appears to us to be indicated by their multiplicity, for in nearly every case a large number of duplicate remedies is prescribed for one and the same complaint. In some of the magical texts the spirits are represented as leaving the body through its excretions, such as the faeces, sweat or urine, or else in the form of wind.

IV. The Diseases And Injuries Treated

Injuries treated when we come to consider the details of the ailments or injuries with which the medical papyri deal, we are confronted by a host of difficulties. In the first place, the papyri abound with philological and lexigraphical problems. They are written in a specialized and concise form full of syntactical difficulties. They are, as we have said, copies of older books and abound in textual complications. But the greater difficulty of all is our complete inability to translate into English the great number of the maladies described and the great majority of the drugs specified in the prescriptions. There are, for instance, some half dozen different words for which we have no closer equivalent than "swelling," "lump" or "boil," and in such cases we have to rely mainly on the context for guidance. Many of these "swellings" for instance are clearly some of the manifestations of Bilharzia infection. A very general idea, however, can be obtained as to the nature of the maladies, and happily in a great number of cases we can accurately translate.

Generally speaking, most of the maladies dealt with in the papyri are those which still attack the *fellahin* of modern Egypt. Intestinal troubes due to worms, numerous ophthalmic complaints, boils, sores, bites or stings of insects or other animals, and the ravages caused by Bilharzia.

To go into any detail in this place is impossible, but we may say that although no strict order is maintained in the papyri the prescriptions usually fall into groups, and each group is generally preceded by a title. The Ebers papyrus begins with the general title:

"The Beginning Of The Spells For Applying A Remedy Of Any Member Of A Man."

This is followed by the introductory incantation, then follows another title:

"The beginning of the collection of prescriptions."

The papyrus then goes on to a long series of prescriptions for the belly and intestines. In this section are prescriptions for promoting and correcting urination, for purging, for pains, swellings, for getting rid of various kinds of worms. Several further collections of prescriptions follow, including a group the title of which, translated literally, reads:

"Beginning of the prescriptions for causing the heart to receive food."

These prescriptions are evidently to stop sickness and promote appetite. As we might easily suppose, the eyes have a very long section devoted to them. We find also prescriptions for the lungs, liver, stomach (the Egyptian word for which means literally "mouth of the heart"), and a large series devoted to the hair and scalp, including ointments to prevent the hair from turning gray. Another series deals with "heart" (fevers, and the like) sores, affections of the mouth and throat, the tongue, the teeth and the ears. Mastoid disease was common in Ancient Egypt and many skulls have been found displaying its effects (See Fig. 2). Amongst

FIGURE 2

the prescriptions in the Ebers Papyrus is one for "an ear which emits a foul discharge," which is doubtless a case of mastoid disease. A large group of remedies, "to relax stiffness in the joints," deals with rheumatoid troubles, and a further section is concerned with gynaecology. After this we have a collection of household remedies; directions for getting rid of fleas, flies, snakes, mice and other vermin. Between these and the concluding section of the papyrus which is surgical, there is a treatise upon the heart and its vessels. It contains a number of statements, with explanatory glosses as to the heart and the vessels connected with it and has this title:

"Beginning of the science of the physician. To know the movement of the heart and to know the heart."

The language in which it is expressed makes an intelligible translation impossible unless accompanied by a bulky commentary, but its general drift may be summarized as follows:

There are vessels attached to the heart for every member, and the physician can treat them by placing his fingers on various parts of the body. There are four vessels from nostrils, two of which supply mucus, and two blood. There are vessels in the temples which supply blood to the eyes. Watering of the eyes is caused by the eyelids. The vessels on the back of the head supply nutriment to the hair. When air enters the nostrils it proceeds to the heart and lungs, and thence all over the body. (The text proceeds in this manner, and what immediately follows is difficult to understand, but a little further on it becomes more intelligible.) There

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A Brief Review of Progress in Dermatology in 1924

R. H. Rulison, M.D., and W. J. Highman, M.D.
New York.

Historical

A valuable contribution to the history of Dermatology is found in Goodman's article[1] on Eponyms of Dermatology. The author has collected in a sixty page paper many rare photographs and brief biographies of all the scientists with whose names dermatologic conditions are linked. The work has been carefully done and is invaluable as a reference.

Etiology

MacLeod[2], the British dermatologist, read a short paper before the American Dermatological Association, reaching the conclusion that tuberculosis has no direct etiologic connection with lupus erythematosus.

Bearing on this point Milian and Meyer[3] report a case of fatal lupus erythematosus with absence of evidence of tuberculosis at autopsy.

Stein[4] has studied the etiology of baldness. From observations of the curve of the frontal hair line in children and in adults he considers the recession of the hair at the sides of the forehead physiologic in adult males. He believes this to be a normal sex characteristic, not dependent on the presence of seborrhoea. Interesting observation are made of sex characteristics of animals appearing in the same region.

Levy-Franckel, Juster and Van Bogaert[5] found the basal metobolism above normal in 14 to 22 cases of alopecia areata.

Orr[6] studied 100 cases of alopecia areata in an effort to detect any relation of this puzzling condition to syphilis. Only one of the 100 cases thoroughly examined presented any evidence of syphilis and Orr concludes that alopecia areata occurring in a syphilitic is probably a coincidence.

A clinical and statistical study of Hodgkins disease and lymphosarcoma by Desjardius and Ford[7] shows a marked parallelism in clinical manifestations of these diseases and adds to the probability that they are only variations of the same process.

Cole[8] in The Dermatoses due to Cosmetics calls attention to the irritating and poisonous substance often incorporated in these preparations.

Bacteriology and Histopathology

Dick and Dick[9] succeeded in producing scarlet fever experimentally in two volunteers inoculated with streptococcus hemolyticus obtained from a pustule on the finger of a patient suffering from that disease.

Klein[10] reports on the histogenesis of keratoderma belnorrhagicum giving photographs, microphotographs and bacteriological studies of this rare condition.

Barkman and Nelson[11] have studied the active agent in milk injections. They concluded that this was dependent on the bacterial content rather than on the milk itself. Since this factor is extremely variable they have given up milk injections.

Pardo-Castillo[12] has succeeded in culturing an aspergillus from colored patients having depigmented or partially depigmented lesions resembling leucoderma syphilitica.

Fox[13] from answers to a questionnaire and from personal experience concluded that the majority of dermatologists had found vaccines unsatisfactory in the treatment of acne while the *x*-ray, in capable hands gives good results.

Guy and Jacob[14] have made much needed studies of the erythema dose of radium in various forms of application.

Lisser[15] describes the restoration of normal nails in a case of onychauxis occurring in a eunuchoid (traumatic) after implantation of testicular substance.

Therapy

Gerstenberg[16] studied the etiology and treatment of herpetic (aphthtous and aptho-ulcerative) stomatitis and herpes labialis in children. He found that the administration of water-soluble B-vitamin, as found in canned tomato, leads to rapid cure and considers bacterial findings only secondary to the metabolic deficiency.

Barenberg and Bloomberg[17] obtained uniformly prompt cures of Vincents' angina and stomatitis in children by one intramuscular injection of sulpharsphenamin.

Smith and Busky[18] found that cases of impetigo contagioso in children, when due to streptococci were readily cured by 3 per cent to 4 per cent ammoniated mercury ointment. When the causative organism was a staphylococcus, however, the ointment was not effective and in such cases they resorted to 5 per cent gentian violet.

Solomon[19] succeeded in relieving lumbar puncture headache either by the intramuscular injection of 1 cc. pituitary extract or by the intravenous injection of 100 cc. to 200 cc. of distilled water. Either procedure was found to cause a prolonged rise in cerebro-spinal pressure.

Syphilis

Boone and Weech[20] treated early hereditary syphilis with intramuscular injections of sulpharspehnamin. The therapeutic response was satisfactory and they were enthusiastic in the matter of its case of administration to babies.

Halloran[21] obtained favorable results in the treatment of neurosyphilis with sulpharsphenamin.

Stokes and Behn[22] used sulpharsphenamin in a large number of syphilitics in all stages. They found the drug, given intramuscularly, just as effective as arsphenamin given intravenously in the average case and distinctly superior in neuro-syphilis. The same authors[23] in a later article mention the fact that cutaneous reactions are more frequent with this drug than with other arsenicals.

Belding[24] found that dermatitis followed the use of sulpharsphenamin in 16 per cent of his cases, and mild peripheral neuritis in 56 per cent. Occasional hypersensitive cases are found in which the drug is not tolerated.

Jeanselme, Delalande and Terris[25] failed to find bismuth in the cerebro-spinal fluid in 31 cases under treatment with this drug. They think reports of its presence after intravenous or intramuscular injections are based on technical errors.

Shivers[26] believes that bismuth should be tried in patients intolerant of the arsenicals but should not be substituted for mercury and salvarsan where these can be given. In some cases of neurosyphilis he thinks bismuth

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Home Care of Pulmonary Tuberculosis

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The care of the tuberculous patient at home is neglected today in favor of hospital, sanitarium, camp and other institutional care. In an article, on "The Treatment of Pulmonary Tuberculosis," published in 1915, I stressed the value of the home treatment from curative and economic standpoints; I have had no cause since to modify these conclusions. The substance of the article was: early recognition of the disease; a full explanation to the patient; the teaching of prophylaxis; rest of the mind, body, and diseased tissue to the degree attainable, in bed during active stage; fresh air, which is restful to the lungs and is a tonic, hypnotic and antipyretic, used along with sunshine; diet of appetizing, nutritious, and digestable food; medication symptomatic.

An arrest of tuberculous process was considered secured when the temperature continued normal, cough and expectoration ceased, and a satisfactory gain of body weight was obtained. In a number of instances the treatment was started in the hospital but as soon as possible the patient was sent home, to the care of the family physician, with typewritten instructions.

In average practice the question of how many tuberculosis patients are diagnosed, lost sight of, living or dead, may be answered in the following survey of 200 office case records selected from my private practice.

The clinical diagnosis are as follows:—active and healed tuberculosis; active being of two types, early and chronic. This classification ignores incipient, sub-acute, latent and other more or less confusional clinical diagnostic terms.

The 200 records are divided into three groups:

Lost sight of	99
Living	70
Dead	31

THOSE DEAD

From pulmonary hemorrhage	3
From other diseases (see below)	7
From sepsis	21

There is too great a tendency among physicians to "bury and forget," so "lest we forget;"—this group of 31 deaths is published. Those dying directly as the result of tuberculosis, 24; viz, chronic active, 23; miliary (per autopsy No. 224), 1. Those dying from other causes in which tuberculosis was also present were 7; early active 1; chronic active 2, healed 4.

Of the 24 tuberculous dead, three died from hemorrhage of the lungs and 21 from sepsis. Of the other 7;—2 died of acute lobar pneumonia; 1 of acute dilatation of the heart; 1 of cancer of the sigmoid; 1 of hemorrhage from the left kidney, following nephrotomy (autopsy No. 216); 1 following operation for empyema; and 1 of syphilis of the brain (autopsy No. 221).

The average age at death of the 31 was 37½ years; 12 were females and 19 males. Tubercle bacilli were found in the sputum of 13. Autopsies were performed on 4. The longest any of the 24 lived after recognition, was 4 years.

Recognized complications of this group were:—suppurative otitis media, ischio rectal abscess, arthritis, syphilis, mitral insufficiency, empyema, stone in kidney (operated upon) cancer, lobar pneumonia. Expectoration of blood was a prominent symptom in 17 of the 24:—9 received no specially prescribed treatment, as a fatal prognosis was evident.

Mention may be made here of a patient in this group, who expectorated 40 lung stones or chalky concretions in one day. They varied in size from a grain of popcorn to a grain of field corn; irregular in form, with numberous rough projections; white in color. Many opacities were seen in the right upper lobe, per *x*-ray, which were read as lung stones. Lung stones are occasionally found in patients with chronic tuberculosis (6 in 1,000, L. Brown).

Sepsis is the most frequent cause of death in pulmonary tuberculosis, although this fact is not so widely appreciated as it should be. By sepsis is meant the direct killing action of the toxins of the tubercle bacillus and the toxins of the disintegrating lung tissue. These cause the typical fever. Mixed infections may play a part but not the important role.

The fever of tuberculosis is a characteristic one, subnormal or remissive in the morning, with a rise in the afternoon. This is but one manifestation of the poisoning (sepsis) by the toxins of the disease. All vital organs, especially those of the cardio-renal-vascular system suffer a wasting death as a result of direct contact with the toxins. From a study of this group it is evident:—First, that many died as a result of sepsis, 21 out of 24. Second, that the average age at death was 31½ years. A little over half the normal span of man, "three score." But it is a fact that they lived long enough to develope a family and leave a heritage to the race of individuals predisposed to the disease. Third, that the individuals who were diagnosed early and who followed rational treatment lived longer than those who did not; they were also safer members of the community.

A marked progress in the management of tuberculosis has taken place during the past 35 years, due to the physician and public recognizing its cause (Koch's bacillus), its infectiveness, and that cases in which prophylaxis is instituted before birth and carried out through life show the lowest percentage of fatal tuberculosis.

Regarding the average duration of life, "L. Brown (Chapter 9 and 10, Vol. 3, Osler, Modern Medicine, 1907) states that it is from 3 to 6 months; for all that is acute, sub-acute, and chronic from 3 to 4 years; for the chronic, from 6 to 8 years." And as to the cause of death; he states, "14 per cent died from asphyxia (Lebert), 2 per cent from hemorrhage "West," the rest are unaccounted for."

With the foregoing my figures do not markedly disagree except for the cause of death. Asthenia (without strength) and asphyxia (want of breath) are secondary conditions and should not be given as a cause of death in the tuberculous.

Group Lost Sight Of

Brief mention here is made of the 99 patients on whom I was unable to get any further data than which appeared upon their original history card. They were classified as early active pulmonary tuberculosis, 15; chronic active, 71; healed, when examined, 13.

Those Living

Of this group there were 70 living at the time I closed this survey. Many of these patients had had no active signs of the disease for 8 years, and none for 1 year, yet they were not considered permanently cured. Some advocate that 2 years should elapse after all symptoms of the disease have disappeared before stating "A cure has been established." There is no advantage in ever

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Foreign Body in the Male Bladder

Rubber Catheter Removed Through Operation Cystoscope

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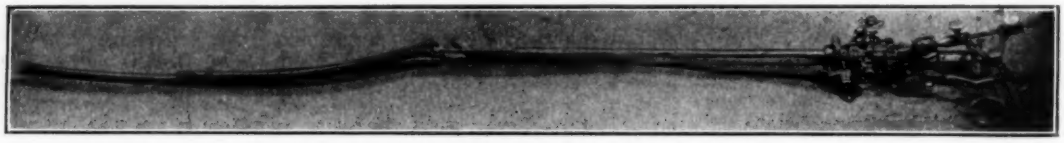
New York.

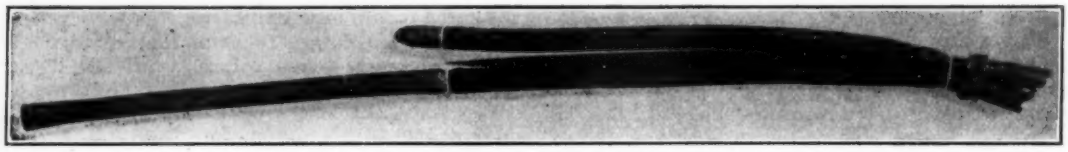
A colleague brought to the writer a man into whose bladder a rubber catheter about size 18 F. had slipped during irrigation. Olive oil had been used as the lubricant so that the catheter and the entire urethra and penis were very slippery. Whether or not in such circumstances there is in some patients a peculiar reverse muscular action not unlike reverse peristalsis is not possible to say, but in the author's work on "Urology" Figure 240, are shown five large and two small pieces of chewing-gum which had passed into a man's bladder in much the same way as this catheter. For purposes of perversion the chewing gum had been teased into a long piece and passed into the urethra into which it slipped further from the patient's grasp and according to his story passed into the bladder rather quickly. It was seen in this viscous through the cystoscope as a single ball exactly as chewing-gum is rolled in the mouth, but coated with phosphatic deposits. The nature of the foreign body was not revealed until the fragments were removed in the lithotrite, the chewing-gum identified and the patient compelled to tell his story.

Cystoscopy in the subject of this paper showed the catheter lying in two main coils. A rather small one perhaps two inches in diameter close to the trigonum consisted of the eye-end coiled upon itself so that the eye was hidden behind the rest of the catheter hence the eye was entirely out of reach. The second coil was larger and passed like a meridian across the apical and subperitonial zones of the bladder slightly to the right of the middle line. This inspection cystoscopy was done with the original reverse image Brown-Buerger cystoscope in order to secure the advantage of the very large field of this instrument, which the author considers of very great advantage in studying foreign bodies and tumors in the bladder. The Buerger ronguer was then mounted on the telescope of the Brown-Buerger operation cystoscope. The convex sheath was easily passed into the bladder and the telescope with the ronguer inserted. The bladder was then filled with about 250 c.c. of warm boric acid water.

It was found that the small coil of the catheter had disappeared and that the only portion readily in reach was the larger meridian coil which had not changed in position. As it, therefore, lay almost directly ahead of the instrument, it was easily approached and seized as far as possible beyond one diameter. The jaws were then slowly and firmly closed and the ronguer locked. The next step was to push the ronguer as far into the bladder as the handle would permit. The beak of the cystoscope was then brought to the middle line and very slowly and gently the entire system was withdrawn. The position of the tip of the ronguer far beyond the beak of the cystoscope took advantage of its flexibility so that the pain and injury at the neck of the bladder would amount to very little.

The whole procedure was very successful until the catheter reached the proximal portion of the bulb. Here the normal narrowing probably increased by a slight torsion of the penis during the withdrawal caused the catheter to stick. While the physician held the instrument and I gently manipulated the penis, the catheter, which was not a new one, tore through under the jaws of the ronguer I immediately seized the urethra to keep the catheter from slipping back again and then with a Kelly mosquito forceps seized the catheter again and easily withdrew it.





The catheter is size 17 French and the two diameters when doubled upon themselves easily compress to size 24 French, which was exactly in accordance with my estimation. The anesthetic used was 1 per cent novocain generally instilled into the anterior and posterior urethrae so that the pain was almost nil. The hemorrhage was insignificant and had ceased entirely at the end of a half-hour's rest on the cystoscopic table combined with compression of the urethra in the hand of the patient.

Figures 1 and 2 respectively show the instruments as they were arranged for the intervention and the catheter doubled upon itself as it appeared in the grasp of the Kelly forceps.

As this particular manner of losing a catheter in the male bladder is very rare this case report will be of interest. Of course, pieces of catheter which break off in the bladder are common enough, but the length of this instrument is practically sixteen inches.

45 West 9th St.

Massive Excision of Subcutaneous Abdominal Fat

An Analytical Review of the Literature

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The profession is not sufficiently acquainted with the benefits, cosmetic and physical, that can be secured by the operative removal of large masses of subcutaneous abdominal fat. Fatty, pendulous abdominal walls have been looked upon as natural, as irremediable and therefore have received but very little study. It has however been repeatedly and amply demonstrated that superfluous masses of subcutaneous abdominal fat can, with safety and with advantage to the patient, be removed by operation.

Fat in excess may be deposited either in the subcutaneous cellular tissue or in the muscular and fascial layers of the abdominal wall, or may be indifferently distributed in all the tissues intervening between the skin and peritoneum. The abdominal wall may contain a layer of fat from three to four and one-half inches thick, [4, 5, 20] even six inches thick.[25] Jolly classifies abdominal fat accumulations as follows:

(a) The pendulous abdomen presenting changes in the muscular and fascial tissues of the abdominal wall.

(b) Subcutaneous fat accumulations not associated with much weakening or impairment of the abdominal wall.

(c) The combination of (a) and (b).

The essential anatomic characteristic of the morbid entity herein discussed is the pathological accumulation of fat in the subcutaneous cellular tissue of the abdominal wall. In all these cases the abdomen shows a symmetric, at times an enormous [9] increase in volume. The fat excess is present mainly in the lower anterior and lateral infra-umbilical portions of the abdominal wall. This superfluous local fat deposit is usually, though not always, a part of general obesity.[9, 13] "All these patients were enormously fat."[17] "Patient on admission to hospital weighed 464 pounds. When on her feet, the abdomen hung down to her knees."[6] It may or may not co-exist with other, related or non-related, pathological changes in the abdominal cavity, contents or walls.

As many cases are reported with but few details, attempts to secure adequate and accurate data meet difficulties. A diligent search of the English, French and German literature yielded seventy-seven operatively treated cases serviceable for analytical study. To these we have added eleven personal cases. We did not use the cases of Babcock, forty cases of Lathrop,[14] one hundred and three cases and others that are too briefly reported.

All the patients were adults. In many cases the exact age is not reported. The youngest, at the time of operation, was 25 years old;[25] the oldest 56,[21] 57,[19] and 59 years.[31] In the other cases, the age is stated as follows:

26 to 35 years	9 cases
36 to 45 years	18 cases
46 to 55 years	22 cases

Excessive localization of fat in the abdominal wall is infrequent in men. In our series, there were six males [7, 14, 23, 27, 31] and eighty-two females. Flabby and sagging abdominal walls overloaded with fat are met more commonly in individuals who since early life have been corpulent; the most pronounced forms, however, are seen in multiparae. Thirty-three cases occurring in multiparae, eleven-parae, one case [21] ten-parae, one case,[12] etc. It also occurs in nulliparae.[9, 10, 18, 25, 26]

Lack of space does not permit the discussion of the many complicating conditions that aggravate the discomfort and disability provoked by pendulous abdominal walls.

Redundant fatty abdominal walls, if uncomplicated, give few symptoms. These symptoms, however, both subjective and objective, are characteristic, are conclusive. All the objective symptoms are demonstrable either to inspection or by palpation. At first, pain and disability are slight. The condition progresing, they and the other associated symptoms increase in severity. "Not much pain at first; the swelling of the abdomen gradually increased as did also the shortness of breath and the great pain in the abdomen, in front as well as in the back."[4]

Pain is influenced by posture and is more marked with the patient in erect posture. The pain is increased by all forms of exercise. It is lessened and in some cases disappears with rest in the recumbent posture. It often has the nature of a painful, dragging sensation, and is lumbar, inguinal and hypogastric in location. These patients are inactive;[28] they become averse to all effort, there results a vicious circle for the increased inactivity leads to increase of the local and general adiposity. In women who near the menopause take on adipose, there not uncommonly forms a huge, pendulous roll of fat across the lower abdomen, below the umbilicus. This pendent fat-mass creates a crease, often madid and eczematous, located just above the symphysis pubis.[13] In most patients, the continuous contact and friction of the inferior cutaneous surface of this fat apron and the underlying regions determine an erythema, an eczema, an excoriation, an elephanthiasis[9] of the skin of lower abdomen, of the inguinal folds and in some cases of the upper part of thighs. Some patients present two distinct creases. All the subcutaneous tissues of the hypogastric and iliac regions take part in the formation of these folds which extend transversely from one lumboiliac region to the other and which vary in length and thickness. In the recumbent posture, the flabby fatty mass gravitates to either side and sags over the iliac spines and crests.[25] The prolapsed tissues show impaired tonicity, impaired resistance. Nearly all the patients are obese; two hundred twenty-seven pounds,[24] two hundred forty pounds,[4] two hundred eight-five pounds,[18] three hundred fifteen pounds (Gibbon) [14], etc.

This excessive fat-deposit hangs apron-like over the external genitalia and the upper portion of the thighs,[12] may overlap the upper two-thirds of the thighs.[23] "In the standing position, the abdomen hung down in a fold which extended to within two inches of the patella.[25] The abdominal wall reached below the knees when the patient was standing."[14]

Other subjective symptoms and objective signs are enumerated in conjunction with indications for operation.

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* All the publications to be found at the John Crerar Library, Chicago, Ill.

Pendulous fatty abdomen must be differentiated from diastasis of the recti abdominalis, with which it may be associated. If it be suspected that the recti abdominalis muscles are abnormally separated, the examination is best conducted with the patient in the recumbent posture. The patient reclining is told to elevate the head as high up as possible without the help of the arms. If the diagnosis be positive, this maneuver separate the inner borders of the two recti muscles from one another, causes a greater or lesser prolapse of the intestine through the gap and enables the examining hand to easily depress the superficial abdominal coverings into the abdominal cavity.

The careful clinician will not overlok or misdiagnose hernias (umbilical, inguinal, ventral, etc.). They frequently co-exist with pendulous abdomen. Their anatomical location and clinical characteristics are suggestive. Hernias give an impulse on coughing, often present a volume larger at times than at others; if intestinal, they give a tympanitic note on percussion. If no hernia be present, if there be no abnormal separation of the recti muscles, the fat mass can be easily raised from, and made to glide somewhat upon, the underlying resistant muscular wall.

In properly selected cases, large masses of fat can be removed from flabby, sagging, fatty abdominal walls when the excessive fat deposit—

1. Causes great annoyance and discomfort:
   a. Pain[11, 16]
   b. Backache[24]
   c. Dyspnoea on moderate exertion, ascending stairs, walking, bending[27]
   d. Distressing irritation[3], inflammation of the skin; erythema[7]; intertrigo[22]; eczema[14]; chronic inguinal excoriation[15].
   e. Pouch-like overhanging of a cumbersome, useless, fatty apron in front of the upper portion of the thighs[6, 9, 12].
   f. Undue fatigue[21] and painful dragging sensation from the weight of the mass[19].
2. Determines manifest disability:
   a. Interference with locomotion[27].
   b. Interference with marital relations[7].
   c. Interference with the exercise of one's calling[9]. "Patient said that she was becoming a semi-invalid and insisted that she be relieved[6].
3. Constitutes a physical handicap[13].
   a. Inability to comfortably, to gracefully assume the erect posture; waddling gait[13].
   b. Inability to attend to the toilet of the lower part of the body[13, 22, 28].
4. Becomes an unbearable social handicap; patient is unwieldy, unsightly, incapacitated for recreation, not sick, not well[2, 13]. "The dragging sensation caused by the pandulous abdomen was so great that she was forced to keep off her feet as much as possible.[6]

Resection of large masses of subcutaneous abdominal fat is also justifiable and most serviceable—

1. In the obese, to lessen the tendency to hernia formation.

2. In operating for hernia in obese individuals, so as to obtain better exposure of hernial rings and hernial regions.

3. As an associated, supplementary and terminal step to many abdominal operations: Hysterectomy (Marvel[20]; ovariotomy[9]; cholecystotomy and cholecystectomy[31]; appendectomy[24]; uterine prolapse and retroflexio uteri.[21] "In association with lipectomy, we have frequently drained or removed the gall-bladder, the appendix or have performed other abdominal or pelvic operation.[1]

4. As a preliminary step to many abdominal operations so as to facilitate intra-abdominal work[20]; a small fibroid in an atrophic uterus, a retro-cecal appendix, a small gall-bladder tucked away in a deep fossa with a stone in the cystic duct or still worse a stone in the common duct, etc.

5. In cases in which the careful fitting and wearing of an orthopedic apparatus is not otherwise feasible. "Lipectomy was done to facilitate the fitting and wearing of an orthopedic apparatus for the support of the strained sacro-iliac joints.[16]

The benefits secured from massive resection of superfluous subcutaneous abdominal fat are so evident, so manifest, and the dangers attending the operation are so negligible that even in the absence of any other pathological process calling for an abdominal operation, the surgeon should not hesitate to advise and to urge the excision of these useless, troublesome and cumbersome fat accumulations.

The risks of simple lipsectomy, either performed alone or in conjunction with other operative procedures are far outweighed by its beneficient results. It has been successfully performed at the same sitting with operations for the cure of hernia (umbilical, inguinal, ventral, epigastric, incisional, appendiceal, gall-bladder and uterine disease, etc. In the eighty-eight cases furnishing the subject-matter of this paper, only two deaths are recorded. One patient, operated upon for umbilical hernia and pendulous abdomen, died from embolism.[29] Mac Lean's[16] patient, operated on for pendulous abdomen and incisional hernia, died from peritonitis on the fifth post-operative day.

Lathrop[14] operated one hundred and three cases of umbilical hernia. In fifty-seven of these, he removed some excess fat. In the remaining forty-six cases, he performed a regular lipectomy. He reports one death which occurred twenty-two days after operation. The patient, a man weighing 325 pounds, from whom twenty-two pounds of fat had been removed did well for two weeks, then his kidneys began to fail and he gradually succumbed.

In twenty-four cases of our series, a simple lipectomy was performed[2, 7, 12, 13, 14, 16, 21, 22, 23, 25, 26, 27, 31]. In simple lipectomy, the operative procedure is limited to the massive retrenchment of redundant subcutaneous fat and overlying skin. The incisions extend through the skin and fat, down to the fascia and not beyond.

In the remaining sixty-four cases, the lipectomy either preceded or followed, but always at the same sitting, operative steps for the cure of—

a. An umbilical hernia[2, 4, 5, 6, 10, 13, 14, 16, 17, 18, 21, 28, 29];

b. An epigastric hernia[3, 31];

In a. and b., the overlapping of flaps leads to local elevation or ridge formation. This need not disturb the surgeon. The fortifying of the abdominal wall has been accomplished.

c. A large ovarian cyst and umbilical hernia (two cases[9, 31];

d. A ventral hernia (Gibbon[14]);

e. An incisional hernia[15, 24];

f. Uterine disease (uterine fibroid) (Marvel[20];

g. Uterine prolapse[21];

h. Appendicitis[24, 31];

i. Gall-bladder disease, cholecystostomy or cholecystectomy[2, 31];

j. Diastasis of the recti abdominalis muscles.[15]

Lipectomy has also been performed—

a. To facilitate intra-abdominal work, by making intra-abdominal organs more accessible;

b. To assure a better adjustment of orthopedic appliances.[16]

Different operative procedures are employed for the cure of the condition under consideration, each operator being partial to the method which has given him the most satisfactory results. Whatever technique be used, and it must always be adopted to the case at hand, it is all important, all essential that the integrity of the abdominal muscles, fasciae and properitoneal fat be fully respected. Only the skin and fatty mass immediately subjacent to it and directly in front of the fascia are to be removed.

The operation which we perform and recommend is entirely different from that performed by Creveling and others who, to restore the abdomen to normal size and contour, carry their incisions through the entire thickness of the abdominal wall into the peritoneal cavity. Bear in mind that we are not considering here prolapsus of all the abdominal coverings. We are only discussing the removal of excessive subcutaneous fat accumulation.

In the reported cases the amount of fat removed varies; and here it is well to note that many operators state with emphasis that they could, with much additional benefit to the patient, have removed more fat than they actually did. The completeness of the fat-removal is a measure of the freedom from fat thereafter of the part operated. Enough fat should be removed to completely eliminate soreness from chafing. It has been our practice to remove the mass in one or two pieces. Concerning the quantity of excised fat, different clinicians express themselves as follows: "Several pounds of fat and skin.[4] "From ½ to 14 pounds.[1] "The mass was so long that as I held one end up high in my hands at breast level, the other end dragged on the floor and it was so heavy that it was difficult to keep my hold.[13] "The specimen removed was one yard and three inches long, one and one-half feet wide, three inches thick at the edge and weighed seventeen pounds."[5] "Removed a wedge of fat weighing thirty-two pounds." (Clark[14]). "The flap of belly-wall fat removed together with the hernial contents weighed forty pounds.[10]

After having performed several lipectomies, the surgeon experiences little difficulty in deciding how much fat it is judicious to remove. The removal of one large wedge-shaped fat-block, occasionally two, rarely three, usualy suffices. As the patient lies in the recumbent position, the fatty mass gravitates to the sides and can be picked up, can be lifted up as a great ridge or fold lying across the abdomen. The operator grasping this mass in the center, pulls it up and away from the body and circumscribes it by two incisions, one passing a little above and the other a little below the lines of deflection.

It is preferable that the incisions be clean-cut, made with one or several long sweeps of a broad-blade scalpel or short amputation knife. The length of the incisions has little appreciable influence on the outcome of the operation. "The incisions were twenty-one inches long."[17] "Incision was twenty-seven inches in length; there were four hundred square inches of raw surface."[15] "After being sutured, the incision measured twenty-two inches in length from flank to flank."[4] "When stitches were removed, the abdominal incision had contracted until it measured only twenty-seven inches from side to side."[6] Patterning by slicing is bad practice. Small hacking cuts are to be condemned. The smoother the fat surface, the better the approximation. Two initial incisions usually fulfill all requirements. These two incisions converge into one upon the fascial layer, thus no undermined surfaces, no pouches for the accumulation of wound secretions are left. Sufficient skin must be left for approximation. Let there be no undermining of the wound edges.

In the reported cases, dissimilar incisions differing in type, in length, and in location were employed. Most operators used two transverse elliptical incisions joined at both ends[5, 8, 10, 14, 16, 17, etc.] In some cases, the upper incision was supra-umbilical; in most cases, both incisions were made below the umbilicus. The incisions starting at either the anterior, or middle, or posterior axillary line of one side cross the abdomen and terminate at a corresponding point on the opposite side.

Castle[5] began his upper incision two inches lateral to the spinous process of the lumbar vertebra and carried it above the umbilicus, across the abdomen, to an analogous point on the opposite side. The ends of this incision were joined by a second transverse incision crossing the abdominal wall above the pubes. These two incisions outlined an ellipse. Cullen[6] circumscribed a large transverse elliptical area which, after removal, measured thirty-six inches from side to side and nineteen inches from above downward. Shallenberger[24] by means of a double infra-umbilical incision going from flank to flank embraced an elliptoid area of skin 45 cm. long and 15 cm. at its widest part.

In selecting incisions, we are guided as to length, type and location by various factors: such as, the existence or absence of complicating conditions, the nature of the other indicated operative steps, the amount of fat to be removed, the patient's general condition, etc. For the excision of large wedge-shaped fat-blocks, we have adopted and recommend two transverse elliptical incisions, beginning well over on one side and extending to corresponding points on the opposite side. These two incisions converge toward the fascial layer. Many other operators follow the same practice. If an abdominal section is to be performed at the same sitting, the fat is first removed by means of a double transverse incision. This having been done, one proceeds to enter the abdominal cavity by a vertical incision through the rest of the abdominal wall. Bullitt[4] completed his operation for umbilical hernia; then prolonged, in both directions and to both flanks, the horizontal incision which he had made. A second transverse incision joining the ends of the first incision was then made; at its mid-point, it was about seven inches below the first.

Transverse incisions have the disadvantage of increasing the already large waist measure and of leaving at each end of the wound an unsightly projection. To avoid these, Babcock[1] removed a small vertical ellipse of skin near each end of the transverse incisions. If transverse incisions be used, the approximation and the apposition of the flaps is effected more easily, the liability to post-operative separation of the wound-edges is minimal, primary union[4, 9, 10, 20, 22, 28] is frequent, delayed healing is not rare[6] and long-delayed cicatrization is very uncommon.

Longitudinal incisions found favor with few clinicians. Frist[9] made two longitudinal incisions, 70 cm. in length, outlining an ellipse that extended from about a hand's breadth below the xyphoid cartilage to a hand's breadth above the symphysis. At their point of maximal separation from each other, each of these two incisions was fourteen centimeters external to the corresponding mamillary line. The wound edges having separated in a few places, healing was delayed. Spaulding[25] made an elliptical incision on each side of the median line. Each incision extended from just below the breast to the center of Poupart's ligament. He removed the integument and fat six inches thick down to the sheath of the abdominal muscles.

In some cases, we made two elliptical vertical incisions at each end of the transverse incisions and were thereby

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The Problem of the Tonsil and Its Alleged Function*

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The disagreement on many basic principles bearing on the tonsil problem becomes evident upon perusal of the literature which has so voluminously accumulated in the past few years. The important points of contention range from the alleged tonsillar function or functions, its condemnation as a malfactor and nuisance in the human body, to the method of its removal and anesthesia to be employed.

"The wholesale slaughter of the tonsils," as tonsillectomy has been called by the conservative, has been opposed by radical practitioners who look upon the tonsil as a possible harborer of focal infection and, therefore, responsible for almost innumerable ailments. Thus, Skillern[1] in a paper entitled "Deductions from examination of 1,000 male throats," claims that 80 per cent were found to have infected tonsils, exerting deleterious constitutional effects, and that very few of these individuals had any idea that there was anything wrong with their throats.

Coats[2] in an examination of about 2,000 men at the Veteran's Bureau, put the percentage of those with infected tonsils as 100. C. H. Mayo[3] says that 80 per cent of children's diseases arise from infections of the nose and throat, and that 90 per cent of the deaths result from infections or their sequalae arising in the same area.

In an analysis of the physical findings of 100 post-office employes actively engaged at work, all of whom were found to have moderate to serious physical defects, Fisk[4] found that in 80 per cent diseased tonsils could be held responsible as one of the main and evident foci of infection.

Equally sweeping are the views of conservative physicians, who, while not totally against tonsillectomy, nevertheless look upon the procedure with grave suspicions, holding that in a majority of cases the operation is unnecessary and almost criminal. Thus, Heiman[5] questions the justifiability of universal tonsillectomy in children, condemns indiscriminate removal of the tonsils, and states his conviction that the tonsils, like other lymph glands, have a protective, as well as a lubricating function, for the throat.

Imbued with the idea that extreme generalization is often unwarranted, and that a happy scientific medium can be found, the writer, in addition to his own clinical experience, has undertaken a review of the literature, not only of the extreme views, but also of the experimental and clinical data, thus hoping to find a common ground on this very important subject.

The diversity of opinion on the tonsil problem may be ascribed to the fundamental lack of appreciation of the essential difference between the tonsils in children and the tonsils in adults. This distinction must be borne in mind, not only from the viewpoint of tonsillar function in health and disease at different ages, but also the indication and contra-indication for its removal, method of removal, and anesthesia to be employed. The answer to and decision on all of these fundamental and technical questions vary, and depend upon whether the tonsils of children or those of adults are under consideration.

The subject may be conveniently divided for discussion under the following headings:

1—The function of the tonsil in human economy.
2—The evolution and involution of the tonsil.
3—The method of operation and anesthesia to be employed.
4—The dangers of the operation and their avoidance.

1—The function of the tonsil in human economy. This most important question has baffled many students who have given the subject the serious attention it deserves. Of all the assumed functions attributed to the tonsils, that of a lymph gland has in the past had the greatest number of adherents. Thus, Frankel[6] published the report of a case of acute tonsillitis following cauterization of the inferior turbinates. He called it "Angina Traumatica" and attributed the complication to a lymphogenic infection, concluding thereby that the tonsils are virtually the regional lymph glands of the nasal mucosa. Lenart[7] and later Henke[8] by experimental injection of pigment in the mucous membrane of the nose and mouth, claim to have found the pigment in the tonsils removed soon afterwards. They therefore concluded that there is a lymphatic communication between the nasal mucous membrane and the tonsils, as well as between the latter and the buccal mucous membrane. Amersbach,[9] however, repeated these experiments and showed that the latter mistook droplets of water in his sections of tonsils for deposits of pigment. Most[10] through numerous injection experiments, showed that the regional lymph glands of the naso-pharynx are actually the deep cervical glands around the bifurcation of the carotid artery and lateral to the jugular vein. In his further studies of the lymph circulation he demonstrated that the main lymph vessel coming from the nose is situated in the lateral wall of the pharynx near the opening of the eustacian tube, that it is directed posteriorly toward the choannae, and divides into two branches: the larger continues with the pharyngeal lymph vessels, to empty into the deep cervical glands; the smaller, directed forward, combines with the lymph vessel coming from the pillars and tonsils and then also empties into the deep cervical glands. I believe it is probably through this communication (Fig. 1) of the efferent lymph vessel from the tonsil, with the smaller efferent branch from the nose, that a virulent infection, for example as Frankel describes, may occasionally enter the tonsillar tissue.

It should also be indicated that experimentors injecting pigment into the nasal mucosa may employ greater pressure than is found physiologically in the drainage of lymph and thereby establish an abnormal back-flow of lymph into the tonsils. Most,[10] for example, in all his experimental injections into the nasal buccal or gingival mucous membrane, has never found the pigment in the tonsils or adenoids.

Schaffer[11] sums up the subject by saying that the difference between a lymph gland and the aggregated masses of lymphoid tissue, such as occurs in Waldeyer's ring (namely, the adenoids, tonsils and lingual tonsils) or in the Payer's patches of the ilium, is that the lymph glands have a cortical layer, no crypts, are situated deeply, are definitely connected with the lymph circulatory apparatus by both afferent and efferent lymph vessels, and serve as filters for the lymph. On the other hand,

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Schematic Diagram of Lymph Drainage from Nose and Tonsils

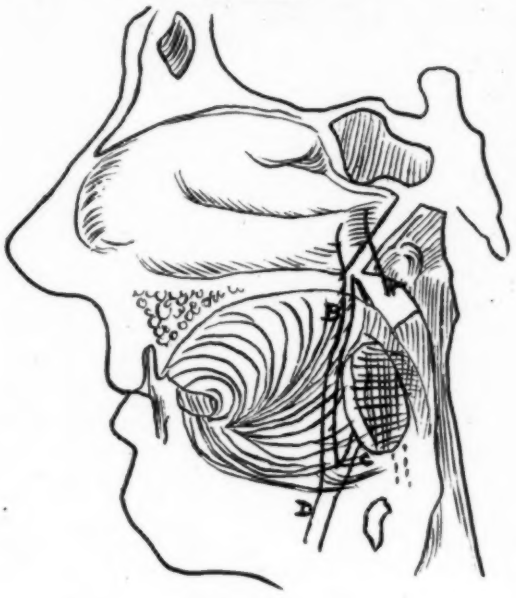

Fig. 1.
A—Larger lymphatic vessel conveying main part of lymph from nose.
B—Smaller branch of efferent nasal lymph vessel.
C—Efferent lymph vessel from tonsil.
D—Communication of smaller nasal efferent lymph vessel with efferent lymph vessel from tonsil.

the lymphoid tissue of the Waldeyer's ring has no cortical layer, is characterized by crypts opening on its surface, is situated superficially beneath the mucous membrane, is not connected with the lymph circulatory apparatus, has only efferent, not afferent lymph vessels, is the origin and source of the efferent lymph current, and does not serve as a passage or filter for the lymph. In other words a sharp histological and anatomical distinction must be made between lymph glands which are composed of lymphatic tissue, and the lymphoid masses that compose the tonsils.

Schlemmer[12] in a series of brilliant physiological and post-mortem studies, corroborated Schaffer's and Most's conclusions. He demonstrated definitely:

1. That the tonsils and adenoids are not the regional lymph glands of the nose, naso-pharynx or buccal cavity.
2. That the regional lymph glands of these organs are the deep cervical glands around the bifurcation of the carotid artery and jugular vein.
3. That there are no afferent lymph vessels to the tonsils and adenoids.
4. That the lymph capillary system within the tonsils represents a closed system of canals with the blind ends peripherally towards the crypts, simulating in this respect the rest of the naso-pharyngeal mucous membrane which has efferent but not afferent lymph vessels.
5. That the tonsils and adenoids are to be considered anatomically as well as functionally part and parcel of the pharyngeal mucous membrane.
6. That although any part of the oro-pharyngeal mucous membrane may be a portal of entry for disease germs, the tonsils and adenoids constitute a locus minoris resistentiae.
7. That the lymph vessels in the tonsils, like all efferent vessels, have no valves. This is just contrary to what is the fact in the structure of afferent lymphatics, all of which contain valves.

Clinically, Schlemmer cites eight cases of carcinoma of the upper maxilla involving the sinuses, inferior turbinates, pharynx, uvula and pillars, in all of whom metastases were present in the regional lymph glands, while the tonsils remained normal both on gross and miscroscopical examination.

Referring briefly to the other functions which have from time to time been attributed to the tonsils, namely: sacharin ferment producers, secretion of fluid to moisten the inspired air, sponge-like function to absorb the excess of sputum tears and nasal secretion; haematopoetic function; endocrine function, and, finally, interceptor to the entrance of disease germs, it must be frankly stated that such varied and assumed functions rest upon purely theoretical and imaginery grounds, with no modicum of scientific basis for their claims.

2. The evolution and involution of the tonsil. The study of the evolution of the tonsil has an important bearing on our subject. Embryologically the tonsils begin to develop at about the fourth month of fetal life. At birth we find this lymphoid tissue aggregated in definite masses as pharyngeal, faucial and lingual tonsils. Under normal conditions, that is, if not interfered with by disease, the tonsils and adenoids undergo involution from the eighth to the tenth year of life. This involution consists in atrophy of the lymphoid structure and replacement by fibrous tissue. In other words, at a certain definite stage in life, nature does away with the tonsils as soon as their function, whatever it may be, is accomplished, and leaves practically a small mass of fibrous tissue instead.

If however the tonsils be the seat of disease, such as a purulent infection of its parenchyma, normal involution and atrophy is interfered with, and the diseased lymphoid tissue remains buried between the adherent pillars. If infection occur at a period of life before involution began, hypertrophy of the tonsils results, a normal reaction of tissue to irritating stimuli. Such hypertrophied diseased tonsils, as well as the small burried tonsils in adults form excellent incubators for various pathogenic bacteria and can be presumed to send forth toxins through the efferent vessels of the tonsils into the general circulation, and with possible selective localization of the particular toxin[13], various organic disturbances may conceivably result. That only toxins and not the bacteria themselves are absorbed, accounts, perhaps, for the slow insidious onset and progress of such disturbances.[14] Later, when so to speak the ground has been prepared by toxins, bacteria may perhaps enter the circulation and cause clinical evidence of acute serious ailment. One may suppose therefore that the mere presence of tonsillar tissue in adults after the normal involutionary period has ceased, whether such tonsils be small and burried or spongy and hypertrophic, is, from the evolutionary standpoint, evidence of tonsillar disease, a condition paramount to a nidus for focal infection." In children, on the other hand, up to about the tenth year of life, the presence of tonsils enlarged or not, is a normal finding, and is per se, no indication of disease. Such tonsillar tissue undoubtedly has some function to perform, and as soon as this is accomplished, nature shrivels it by the normal process of involution. It is, of course, true that children may and frequently have diseased tonsils, as evidenced by local and general symptoms. The point the writer wishes to stress, however, is that visible, enlarged tonsils in children are normal, while in the adult hypertrophied or burried tonsils are definite evidence of interference with normal involution, and in that sense is evidence of disease.

3. The method of operation and anesthesia to be employed—I will not go into a review of the merits and demerits of the various methods of operation and anaes-

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Elicitation and Significance of Abdominal Sounds During Pregnancy and Labor

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I will only deal in this article with the important sounds, and they are those that are prodounced by the aortic contractions; maternal heart sounds transmitted to the uterus; funic souffle fetalmovement; uturine souffle, and fetal heart. The movements or vibrations associated with some of these can at times be seen or felt; but unless they are heard they are of doubtful importance.

Of all the methods of diagnosis at our command auscultation is at once the most simple, most readily avaliable, and most reliable so far as positive results are concerned. It is carried out by means of the ear applied to the bare abdomen or by means of stethoscope. As the results obtained by these means are not always uniform, it is at times a good practice to employ both methods. Neither are the results always uniform in examinations with knees flexed or extended; therefore, both ways may here also have to be tried.

Palpation, whether abdominal or combined abdominal and vaginal, frequently, except for establishing the presence of pregnancy, leaves us in a complete state of uncertainty with regard to presentation, position, and even the very life of the fetus. As a rule, the findings yielded by palpation are only made positive after auscultatory corroboration.

The art of auscultation is still very imperfect, and it is my object to add my share of experience to it. My efforts are so much more opportune at this time on account of the recent tendency to supplant vaginal examinations by rectal ones.

(1) *The funic souffle* is but rarely heard and during very short periods, produced by pressure on the cord. It is synchronous with the fetal heart, and when both are present simultaneously the sounds of the umbilical souffle are of a lower pitch, larger volume, muffled, and one of the sounds is usually of a blowing nature, resembling a cardiac murmur. In some cases the first sound is louder and longer than the second, and in other cases the second sound is louder and longer than the first.

(2) *Sounds Produced by the Fetal Movements*: When the movements do not strike the uterine wall, as is possible in the early months of pregnancy, or in the presence of a small or feeble fetus or hydramnios, they are heard, but not felt nor seen, as a faint, distant thud or tap; but when the movements strike the uterine wall they are heard as a sharp thud, thump, or flutter, according to the rapidity and force of the movements, which may be repeated and shifting, and always conevy a sharp impulse to the ear, which as a rule is also visible to the eye.

(3) *Aortic Sounds*: Described[1] as a dull sound synchronous with the maternal heart, which may occasionally be heard. I would describe it as a sound which may resemble a mouffled heart murmur but of larger volume, or an exaggerated normal heart sound, single, systolic, and always presenting an impulse or thrill, which is frequently visible but always felt by the examining ear or through the setehoscope (unless a uterine souffle or fetal heart sounds are also present, when an inaudible heaving impulse is felt), and the examiner is always conscious that the impulse comes from a posterior to an anterior direction. It is heard in twenty per cent of the cases, and is caused by the pulsations of the aorta striking the uterus and a fluid wave set up in the liquor anmnii and transmitted through the abdominal wall. They are not simply due to the aortic contractions, as they are but rarely heard in the nongravid state, and then only in a relatively small number of thin, neurotic or emaciated subjects.

(4) *Maternal Sounds*: Jellet and Madill[1] say that the maternal heart can usually be distinctly heard over the uterus. Actually it is but rarely heard, and particularly during the last months of pregnancy, and then only when it is rapid or of high tension quality or both, and this usually during periods when the fetal heart is faint or inaudible. When it is heard it is rather of a somewhat lower pitch than when heard through the chest and is usually systolic, very rarely both systolic and diastolic below the umbilicus, and never induces an impulse or thrill as that which accompanies the sound produced by the aortic contraction, and partakes of none of its other characteristics.

(5) *Uterine Souffle*: The reason that the souffle is allotted a place of minor importance as a diagnostic means of pregnancy and that its proper study has been neglected is due to the claim made by all writers that it may also be heard in uterine fibroids and ovarian tumors. This hypothesis is entirely unjustified and misleading, owing to the fact that it is exceedingly rarely heard in these conditions and when so heard it is just as rarely that pregnancy could not be excluded. The presence of an aortic sound produced by the pressure of the tumor on the aorta has undoubtedly been mistaken for a souffle. Therefore, next to the fetal heart and particularly when it cannot be heard, the uterine souffle is of equal importance as a diagnostic means of pregnancy. For this reason I will go more or less into detail as to my experience and observations on this subject, even at the expense of repeating some of the views which I have already expressed in a previous publication.[2]

The uterine souffle takes place in the uterine blood vessels when a sudden or abrupt constriction or sudden dilatation (I use the words "sudden" and "abrupt" both in the sense of time and in a mechanical sense) occurs in their lumen, and the current meeting with more resistance or less resistance than usual, as the case may be, and not simply in the dilated uterine blood vessels and probably also altered condition of the blood, as it is commonly taught. This is of a blowing, hissing, or whistling character, systolic, and corresponds to the maternal pulse rate, and is heard to pass the ear in a longitudinal course of the uterus.

The production of the souffle is facilitated, modified or eliminated in a measure by the uterine contractions, but more so by the unequal uterine contractions and relaxations, changes in maternal position, uneven consistency of the uterus, changes in fetal position and amount of liquor amnii—a large amount will prevent souffle formation or make it very faint. In a general way, the occurrence, location and intensity of the souffle can be further explained by tonicity or pressure or lack

of pressure on the uterine vessels, and the agents exerting this influence are the amount of liquor amnii, the tonicity of the uterine wall, and the abdominal muscles. So far as the abdominal wall is concerned, very often its thickness and weight take the place of tonicity, but there may also be a conjoint action of the same.

Another influencing factor is the combined anteversion or flexion and dextro version of the uterus during pregnancy, causing the anterior wall of the uterus to be completely supported by the abdominal muscles, the right partly so and the left side least of all or not at all. As a result of this position there is a slight tension exerted on the vessels of the right side (not "torsion," as is commonly taught), thus maintaining a more uniform and steady lumen of the same, and this, in conjunction with the action of the abdominal wall, precludes the frequent occurrence of the souffle on that side. Therefore, in consequence of the tension of the vessels and dextro-version, the souffle is heard most frequently and loudest on the left side, less on the right, and least anteriorly. When the uterus is situated in the median line the souffle may be heard on both sides; if it is retroverted or the abdominal wall or the uterus or both are greatly relaxed, the souffle will be heard throughout the whole uterus.

Shears[3] attributes the frequency of the souffle on the left side to the right obliquity of the uterus, with the result that the vessels on the left side are nearer the abdomen. I would say that the anterior or posterior position of the vessels could only influence its location on that side but not its occurrence there. Clearly there must be different reasons.

The cause of the complete absence of the uterine souffle is due to the tonicity of the uterine vessels principally, but it is as a rule a combination of the pressure of the liquor amnii, tonicity of the vessels, uterine muscle and abdominal wall. The influence of these factors can best be seen during a contraction of pregnancy or labor, and particularly during labor, when the abdominal muscles supplement that of the uterine, and during the height of a contraction the murmur or souffle disappears, and at the end of it the souffle reappears. This also illustrates in a sense the sudden constriction and dilatation of the uterine vessels referred to above. The inconstancy of the position, period of audibility and intensity is due, in addition to the causes already referred to, to the inconstancy and incoordination of the action of the blood vessels, uterus and abdominal wall.

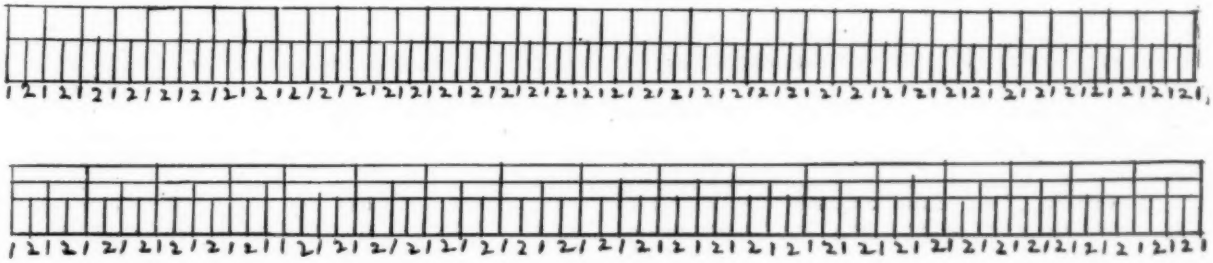
In accordance with the views expressed above, I have repeatedly changed the location and intensity of the souffle and brought it out where it was entirely absent by placing the patient in a lateral position for a few minutes. For example, a souffle being present on the left side, placing the patient on the right side will increase the intensity of the same, and if the souffle is absent, one will appear. The souffle being absent on the right side, placing the patient on the left side, by correcting the dextro-version of the uterus (this can be facilitated with the aid of the hand), a souffle frequently appears on the right side.

The souffle will as a rule obstruct the fetal heart sounds when they happen to be in the same location, so as to make them inaudible.

Since, as it has been shown, the relation of the uterine souffle to the action of the uterine and abdominal walls involves the principle of cause and effect, that is, the stronger the tonicity of the uterus and pressure or tonicity of the abdominal wall, the lower the souffle (or it is completely absent), then pressure on the abdominal wall ought, theoretically, to eliminate the souffle. In accordance with this principle I have already recommended, in a previous article,[2] a method for its elimination when obstructing the fetal heart sounds. It is carried out as follows:

Place the stethoscope where you would expect to find the fetal heart, and if pressure with it does not obliterate the souffle, then plant the fingers of the free hand parallell to the transverse diameter of the uterus from one and a half or more inches above or below the stethoscope (try both), and exert a continuous, gentle pressure backward when on the anterior wall of the uterus and backward and toward the median line when laterally situated. You will find (unless the uterus is too relaxed or too mobile, when it can be steadied by counter pressure with the hand on the opposite side of the uterus), as during a contraction of labor, that the souffle will at first become louder and then progressively fainter until it either disappears or grows faint enough for the heart sounds to become audible and countable. When the ear is employed and simple pressure with it does not eliminate it, counter pressure on the opposite side will frequently suffice.

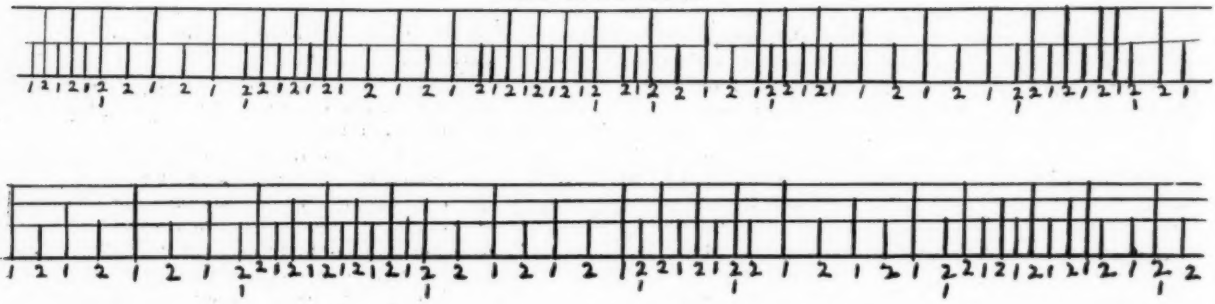
MATERNAL HEART SOUNDS AS HEARD AT APEX



Fetal Heart Sounds: Every author has written on the fetal heart rate, but nobody has written on its rhythm, length, volume or pitch. They all agree that it is the most important sign of pregnancy, that it is double, and that it resembles the ticking of a watch under a pillow. Shears[3] is the only one who diverges slightly from the routine when he says that those with little experience will often claim that they are single. In reality the beats are both double and single alternately, every few seconds. I will attempt to illustrate it by diagram. For the purpose of classification and comparison I will also include a diagram of the maternal heart sounds as heard at or a little below the apex, as this is the sound that we may occasionally have to reckon with during auscultation of the uterus.

Maternal Heart at Apex: First sound louder, longer, and of larger volume than the second. In about forty per cent of cases every alternate first sound is somewhat lower than the one preceding, or it appears so on account of some difference in length, force, pitch, volume, or interval.

FETAL HEART SOUNDS



Fetal Heart Sounds: When double the first sound is short and lower than the second sound and the second sounds are uniform; or the first sound is uniformly short and low, but every alternate second sound is somewhat lower or shorter than the one (second sound) preceding it. When they are single on account of the first sound becoming inaudible or disappearing, one second sound becomes the first and the following second sound becomes the second and both sounds are uniform; or, the louder of the second sounds becomes the first, and the lower second sound becomes the second, and resemble the maternal sounds at the apex, but are of a higher pitch, smaller volume, relatively longer interval and more intensely clear.

In some cases the double sounds predominate, while in others the single are the predominant sounds. During movements of the fetus the sounds may temporarily disappear but when present they are always double. When counting the fetal heart sounds the double sound, on account of the shortness of the interval or its apparent absence, is counted as one and the single or relatively double sounds are counted singly. Here I wish to call attention to the fact that the alternating variety of the double and single sounds continue in many cases, but slightly modified, undoubtedly due to the establishment of respiration and pulmonary circulation (these also account for the complete transition from the ante-natal to the post-natal type), during at least the first few days post partum, and are best heard when child is asleep. Occasionally, under certain conditions and during short periods, and regardless of pregnancy, they are heard in adults as well. In either case the auriculo-ventricular sounds can often be heard synchronously, but one of those is but faintly audible, and this, as well as the alternating and varying quality of the sounds, in all probability, is due to disturbed or altered rhythm of the auriculoventricular contractions and relaxations, on account of flowered tonicity or altered innervation of the heart muscle. The phenomenon of the changes, interchanges and variations of the heart sounds could, in the presence of lowered tonicity or altered innervation or both, be explained on the basis that when listening over one area of the heart the auricular and ventricular sounds can be heard either alternately or synchronously; and that the lower and shorter auriculo-ventricular sounds do temporarily become indistinct so as to be very faint or inaudible and as a result the second auricular and first ventricular or the reversed order, are heard with accentuated distinctness and in pairs. They are all best heard toward the median line of the chest on a level with the apex sound. The above mentioned sounds should in no way be confounded with the usual intermittent or irregular heart sounds although the underlying causative factors may be identical. I wish also to emphasize the fact that my description and illustrations of the fetal and maternal hearts are based exclusively on the revelations of auscultation, and nothing else.

I believe that the above comparative description of the maternal and fetal heart sounds will suffice to make a differential diagnosis should such occasion arise.

In the presence of indistinct fetal sounds, in conjunction with transmitted, rapid maternal sounds, or in the absence of the former, should any doubt exist as to its identity, in order to establish it with certainty, I recommend that, in addition to counting the maternal pulse, the sounds be gradually followed from the apex down the abdomen until they become inaudible, or until they mingle with the fetal sounds, when, in either case, the alternating quality of the latter and the other differences will become manifest.

In the absence of fetal movements or funic souffle the fetal heart is our only objective for the diagnosis of fetal life. It is often associated with the abdominal aortic sounds, and when it is more rapid or louder than the fetal heart the latter will not be audible; but if the maternal heart with which the aortic sounds correspond is of normal rate, the fetal sounds can usually be heard between them; if not both sounds, at least the louder one can be heard. The same thing holds good when the fetal heart is associated with the uterine souffle.

When the fetal heart is obstructed by the aortic sound, and firm pressure with the stethoscope fails to eliminate it, placing the patient in the lateral or Sim's posture will usualy abolish the sound temporarily by relieving the pressure of the uterus against the aorta. When obstructed by the uterine souffle, and the method I have outlined in conjunction with my description of it fails to bring out the fetal heart sounds, placing the patient in Sim's position on the opposite side, by bringing the uterus in closer contact with the abdominal wall and in conjunction with the combined counter pressure of the bed or table, the fetal back will also be raised toward the abdominal wall, thus increasing the pressure and counter pressure on the uterine vessels, their lumen will, as a result, be equalized and diminished, and the souffle will either disappear or grow faint enough for the fetal heart to become audible.

As already referred to, the lateral posture, on the other hand (unless the abdomen is very large or at the end of pregnancy or during labor, when it will have a similar action to that of the Sim's position), will accentuate the souffle as a result of the uterus gravitating to the opposite side, and by the elimination of the influence of the abdominal wall the lumen of the vessels will become more relaxed and more irregular, and the souffle will consequently become louder.

Listening over the abdomen while the patient is kept in the Walcher position in conjunction with an exaggerated curve of the lumbar spine (this position is more effective and not so trying as the simple Walcher), and immediately after patient resumes the dorsal posture, whether the apparent absence of the fetal heart is due to obstructive sounds or to any other cause, has many times rewarded me with success when I had almost

despaired of fetal life. The results thus obtained are due to the mechanical and reflex influence of this posture on the tonicity of the uterus, vessels and abdominal wall, in addition to improving the attitude of the fetus by bringing it in closer contact with the uterine wall. When the uterine souffle is the interfering cause it will usually behave in the same manner as during a contraction of labor.

Fetal Heart Heard Bilaterally: The prevailing impression is, that the fetal heart is heard as a rule to one side of the median line of the abdomen, and when it is heard bilaterally it is either transmitted through a solid medium, such as an arm or a leg or is due to twin pregnancy. You cannot hear the fetal heart through the arms or legs post partum, and why it should be any different intrauterine is beyond comprehension. It must be remembered that the fetal heart is heard louder through the anterior chest wall than through the back, and in any attitude of the fetal body, regardless of the presentation or position, where this is made possible, the heart will be heard on both sides. It is therefore heard bilaterally with equal or unequal intensity, in attitudes of the body, such as diminished flexion or median position, in posture of fetus where the lateral diameter of the child corresponds to the antero-posterior diameter of the uterus, or in an oblique diameter with the chest in the anterior aspect, in small or relatively small sized fetus or a very large one; occipito, transverse or posterior, wherever the body has free play.

I have repeatedly observed in left occipital positions where the point of maximum intensity of the fetal heart was on the right side, or was exclusively there, and in right occipital position with its audibility exclusively on the left side. It is also heard bilaterally where the quantity of liquor amnii is small, after rupture of the membranes and particularly after premature rupture of the same, by altering the attitude of the fetal body and by bringing it into closer contact with the uterine wall. It is also frequently heard bilaterally in certain oblique and transverse presentations on account of the proximity of the fetal heart to the median line; and last but least of all, it is heard in twin pregnancies, where it is taught and believed to be most frequent; and this is due principally to the fact that one of the fetuses is usually concealed or crowded out of the range of audibility, but it is also due to the fact that one of the fetuses is often considerably weaker and its heart sounds are too faint to be heard; frequently one of the fetuses is dead. Obstructive sounds operate here as well as in any other case. Hydramnios, which is a frequent complication, is another interfering element that accounts for the very faint or complete inaudibility of the fetal heart.

Auscultation in the diagnosis of twin pregnancies is only of value in the presence of two separate and distinct areas of maximum intensity and of different rates, bilaterally, or unilaterally on different levels. Such a condition, however, is as rarely present as the occurrence of triplets. Two physicians simultaneously and repeatedly listening over two points of maximum intensity, or simply bilaterally, and each one getting a difference in rate of at least six beats per minute, would be diagnostic of twin pregnancy.

I would not consider this article complete without repeating two methods for the elicitation of fetal movements and heart sounds, which I published[4] some time ago.

(1) *Diminishing Respiration:* Patient is directed to exhale and suspend respiration for as long a period as possible. This is followed by a shallow inspiration and another exhalation. This manoeuvre is repeated from ten to fifteen times (no exact number can be laid down). As a result of such interrupted respiration, in all probability, the oxygen supply to the fetus is disturbed or diminished; the fetus, becoming restless on account of air-hunger, will begin to move, and incidentally the fetal heart will as a rule also become audible. The audibility of the fetal heart thus brought out can possibly also be accounted for by the temporary absence of the respiratory sounds and movements of the mother. Sometimes the movements of the fetus will be very active; at others just barely sufficient to assure the existence of life.

(2) *Elicitation of Shoulder Movement:* Locate the anterior shoulder of the fetus (this sometimes requires a long and diligent search), press gradually but firmly upon it with the tips or palmar surfaces of fingers, and you will (unless the abdomen is very thick) observe the shoulder assuming a vermiform, wriggling action, which is usually repeated, and the body sharing these movements, which are palpable to the examiner's free hand. With the fingers in the vagina, the head can usually be felt to move. These movements are brought about by the sensitive tip of the shoulder trying to evade the intruding fingers. This phenomenon can be reproduced in sleeping new-born infants by pressing on the tip of the shoulder in the manner described.

In conclusion I wish to say that my suggestions and recommendations are subject to the same modifications or exceptions as everything else in the practice of medicine.

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The Heart in Secondary Syphilis

Saggioro's 20 patients were almost all young men in whom lesions of the circulatory system due to advanced age and alcoholism could be excluded; all were in the secondary stage of syphilis. Her conclusions are as follows: 1) The syphilitic virus acts on the heart in the secondary stage of infection by producing circumscribed areas of myocorditis which are sometimes latent and then can only be discovered by careful examination. 2) Patients in this stage of infection may suffer from subjective disturbances of the circulatory system, such as extrasystoles, which are often felt by the patients themselves, tachycardia, dyspneoa of effort, and tachycardia of effort. 3) Examination of the cardiac function reveals a myocardium with feeble powers of resistance and often signs of true myocarditis, such as increase of the transverse diameter, irregular and small pulse, and dull or impure heart sounds. 4) Disturbances of innervation of the circulatory system are frequent, being due to lesions of the myocardium at the point of entrance of the terminal branches of the vagus. 5) Extra-systoles, tachycardia, palpitation, and a state of vagotonia characterized by exaggeration of the oculocardiac reflex, sometimes accompanied by vomiting and syncope, are the manifestations of this disturbance of innervation. 6) Examination of the cardiac function is best carried out by careful physical examination, Katzenstein's test (increase of blood pressure on constriction of the femoral artery indicating myocardial efficiency), and ocular compression.—(*Cuore e circolazione*, April, 1924, 137.)

Paresis Treated by Neo-Arsphenamin: Herxheimer Reactions

Even when starting with a small dosage, these reactions may occur, and Leredde feels that the cases of so-called serous apoplexy are of this nature. A case of advanced paresis is described, in which 1 gm. of the drug apparently produced depression, and a second similar injection was followed by four days muteness. The treatment was continued, in increasing dosage, with good results. The author thinks well of this treatment when applied intensively enough in paresis.—(*Arch. Derm. and Syph.*, 1924 10:2:218.)

Massage in Raynaud's Disease (Dry Gangrene)

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"And Asa in the thirty and ninth year of his reign was diseased in his feet until his disease was exceeding great; yet in his disease he sought not to the Lord, but to the physicians.

"And Asa slept with his fathers, and died in the one and fortieth year of his reign."—II. Chronicles xvi, 12, 13.

It is quite evident that the disease with which Asa was afflicted was in both feet for a long time—at least two years. Therefore it is not at all unlikely that it may have been dry, symmetrical gangrene, as will appear more clearly after reading the following.

Many years ago I perused an interesting "Report on Massage at the Surgical Clinic of the University of Berlin," by Professor Zabludowski.[1] I confess, however, that my faith was severely taxed when I read, that in a case of weakness of the heart following influenza, one leg which had not been massaged became gangrenous and had to be amputated, and that other leg soon after began to present similar appearances, but became normal under careful massage. While I was speculating on whether this could possibly be true, an elderly lady called at my office, and told me that ten months previously her husband's right leg had to be amputated on account of gangrene; that the left one seemed to be similarly affected, and that her physician, Dr. Samuel Crowell, had sent her to me to learn if massage would be of any use. (A few days before, a very thoughtful patient, in no way connected with this case, remarked to me that massage ought to be good for gangrene; so this matter seemed to be "in the air.")

No time was lost in getting to such an interesting patient. I found him to be an unusually intelligent man, a baker by occupation, sixty years of age, and fairly well nourished, considering that he had suffered from saccharin diabetes for fourteen years, for which he was under suitable diet and medication by Dr. Crowell, and doing well in this respect. For fifteen months the left leg had presented appearances similar to those that led to amputation of the right one. I found it pale, cold, and bloodless, although it was warmly wrapped. The pulse could not be felt in the dorsal artery of the foot nor in the posterior tibial. There was a dark scab on the outside of the metatarsophalangeal joint of the little toe, one at the end of the great toe, and one on the inside of the ball of the great toe. The last one was one inch long, half an inch wide, and seemed to extend rather deeply, though it was but three weeks old. He had had ten of these black scabs come and go within the preceding year. Some of those on the outer aspect of the foot had been comparatively large. For a long time before the appearance of any dark spots, he had suffered severely from pain, numbness, and other disagreeable feelings in both feet by day and night. During the previous six months the foot had been growing steadily worse, and the question of amputation was being considered. His pulse was 120, heart-sounds normal, and he was of a cheerful disposition notwithstanding the gloomy prospect.

After half an hour's massage, possibly less, the whole leg and foot were warmer, the tissues suppler, and tension less, and the dorsal artery of the foot could be felt well enough to count the pulse. To the patient the leg felt in a glow, and the pulse was 102. My delight and astonishment were almost unbounded at seeing a dead leg brought back to life in such a short time. I could hardly believe the evidence of my own senses. Directions were left to bathe the leg well in warm water, and to rub it every morning with warm olive oil. Next day I learned that after my visit the previous afternoon the leg had continued to feel warm the rest of that day and all night, and I could count the pulse in the dorsalis pedis artery before massage.

The method of working was principally by deep manipulation in a downward direction, to aid the arterial current; followed and alternated by upward friction, or *effleurage*, to aid the venous and lymphatic flow. To this were added, at the second and subsequent visits, resistive movements of flexion and extension of the foot and leg. After these procedures at the second visit, the pulse in the foot was more perceptible than before.

The patient had been confined to the house and the same floor for fourteen months, much of this time to the same room, and only allowed to go from his bed to his chair by the window on crutches—a few steps. I told him to walk into his front parlor on the same floor once an hour, and to have his body rolled once daily with a baker's roller by one of his own family. His general strength rapidly increased on this plan, and he was allowed gradually to return to a mixed diet, and did well on this. Dr. Crowell advised that this patient's urine always contained sugar in about the same quantity whether he was on a diabetic diet or not, and during the last five years of his life albumen also was present. In a few days he was walking twice every half-hour to the front room and back again to his bedroom. At the end of a week it was evident that the large dark eschar on the inside of the ball of the great toe was growing pale in the centre, and that its margins were diminishing by the encroachment of healthy skin. Five days later this improvement was still more marked, and the patient was very cheerful and hopeful. I visited him every day for a time, and thereafter every other day, getting valuable assistance fro mhis wife, who was a most faithful nurse. He was able to go downstairs and enjoy life in five weeks from the time I first saw him.

The progress of this case, however, was not without anxiety or interruption. About four days later there came a light purplish appearance around the scab at the end of the great toe, which was temporarily lessened by the derivating effect of massage around it. Four days after this the purplish region had increased, so that it covered the whole of the top of the great toe and also the inner aspect as far as the terminal articulation. It had become darker in color, somewhat like a purple grape, and had a blistered appearance, as if it had been scaled. To the touch it did not seem warmer than the surrounding skin; to the patient it felt very uncomfortable. He had had such symptoms before, and they had been premonitory of something worse. His exercise of walking twice every hour to the front room and back was decreased to once an hour, the temperature of the water with which the leg was bathed was reduced, and massage was resumed oftener, for we had been gradually slacking up on this. In a week there was a decided improvement, and he was again going downstairs once a day. The dark spots with purple margins gradually faded away and disappeared, and he

was doing so well that he was left to the care of his wife. The whole period of my attendance was a little less than two months. Then I no longer doubted the statement of Zabludowski—that a leg presenting the incipient appearance of gangrene had been saved by massage and remedial movements.

A year later I called to see how this patient was getting along, and found the foot and leg looking quite natural, no dark spots nor unnatural color anywhere, and he was wearing an ordinary stocking. The pulse could be felt in the dorsal artery of the foot as well as in the posterior tibial; and after fifteen minutes of massage by way of experiment it became fuller and stronger and the veins more clearly visible. He had had the grippe the preceding winter which left him worse than it found him; and within the previous month he had had two severe attacks of dyspnea with great distress in the region of the heart, notwithstanding which he had still persisted in going up and down stairs. His appetite was failing; he no longer cared for his pipe, which till a short time before had been an unfailing source of comfort; he looked pale and thin, and his eyesight had become affected so that he could not read nor see at a distance, and something obscured his vision, though he could distinguish faces and large objects. It was evident that he was not long for this world. His disturbance of vision I naturally supposed must be due to diabetic, or possibly albuminuric, retinitis. He was seen at this time by an oculist, whose report confirmed my suspicions, inasmuch as he found on opthalmoscopic examination that the arteries in both eyes were diminished in size, the veins congested and tortuous, besides other appearances that he though were due to albuminuria. The lenses were clear. But fancy my surprise when I called a month later and learned that his vision had returned, so that he could see to read perfectly, after his visual trouble had lasted for two months. So we must regard the ocular episode as due to spasm of the central artery of the retina and its branches, similar to what occurs in other arteries in this curious affection.

Without suspecting its nature, Loring, in his "Text-Book of Ophthalmology," 1891, well describes the appearances, under the title of ischaemia of the retina, in which the arteries are reduced in size or are even thread-like, while the veins remain of normal dimensions or are fuller than usual. He was looking right at Raynaud's disease and did not know it.

Professor J. Collins Warren was so fortunate on one occasion as to have ocular demonstration of this arterial spasm in a case in which temporary disturbance of vision occurred; the ophthalmoscope showed a well-marked contraction of the central artery of the retina. This symptom occurs sufficiently often in Raynaud's disease to make it clearly recognized. Hofmeister, of Carlsbad,[2] observed gangrene and loss of fingers in a case of diabetes.

Quite a number of years ago a patient came to me with symptoms which I did not then know how to interpret. If I had ever heard of Raynaud's disease at that time, I had certainly forgotten it. To my surprise, therefore, I find I have written my diagnosis—vaso-motor spasm. Later, with a greater complexity of symptoms, an excellent consultant labelled them rheumatism. This patient was about thirty years of age, and had had the grippe eight months before, which confined her to bed four days with high fever. At first she had severe pain in the forehead, then in the back, and finally it settled in the right hand and arm, where it stayed more or less continuously until she came to me. It lasted from a few hours to two weeks at a time, but the hand and arm were never quite free from it. It was worst opposite the palmar aspect of the middle phalanges, next in the same region of the first and third phalanges, and even when comparatively free from pain, pressure here, as well as in the palm of the hand, caused pain which lasted for a few minutes. The pain extended up to the arm to the shoulder. She was an accomplished pianist, and could easily play for several hours when well, but at this time she could only play for half an hour at her best, at the end of which time she had to stop from pain and weakness, and then the tips of the fingers also hurt upon pressure. When she put the hand into cold water it turned greenish-white and felt numb. She had had the pain steadily for two weeks when she came to me, and the pulse was small and hard. Massage at 2 P. M. made the hand and arm feel comfortable at the time and all the afternoon; but she had more pain than usual next morning, which quickly disappeared of its own accord. Again at 2 P. M. she had massage, which was accompanied and followed by increased comfort and fuller and stronger pulse.

Three weeks later I found my notes saying, that under massage three or four times a week she had steadily improved, so that when pain returns it lasts for a shorter time than before, and there is much more comfort in the intervals. At times she has the same sort of pain in the head, which is also much relieved by massage. She finds that this treatment puts the hand and arm in good condition for playing the piano. Five days later she played the piano for two and a half hours without fatigue or discomfort. But the progress of the case from this time was not so uniformly favorable as it had been; for, twelve days later, coincident with the disappearance of the symptoms from the upper extremity, there came pain, stiffness, and swelling of the right knee.* Under massage and sodium salicylate these symptoms left the knee in about ten days, and the hand and arm resumed their former condition of pain, weakness, and numbness, and turning greenish-white when exposed to cold or put into cold water, for which massage proved as efficient and agreeable a remedy as before.

The subsequent history of this case is long and wearisome. Suffice it to say that she had numerous and varying neuro-muscular pains, sometimes affecting the whole right side in a very severe manner, and requiring large doses of analgesics for their relief; and in the intervals tonics, alteratives, and anti-rheumatics were used. The symptoms in the hand and arm already mentioned were persistent, but were always ameliorated by massage, sometimes with the addition of the faradic current. It was five months and a half from the time I first saw her before she could be considered at all well. Evidently this case did not go beyond the first stage of Raynaud's disease—spasm of the arteries. The other cardinal symptoms, local asphyxia and gangrene, were not present. Possibly the massage prevented their development.

There may be some doubt as to Raynaud's disease manifesting itself in a unilateral form. Dr. Solis-Cohen says he has seen one case, and others are on record.[3] Dr. E. W. Clarke, in the *Quarterly Medical Journal* of Sheffield, for July, 1897, has reported a case of Raynaud's disease in which the local stasis suddenly developed, having been preceded and accompanied by severe neuralgic pains. The fingers were first affected; then the corresponding digits of the lower extremities, together with the tip of the nose and the lobes of the ear. This case did not go on to the third stage, that of gangrene, though retrogression of the malady was attended by exfoliation of the superficial layers of the skin

*Osler in Pepper's Text-Book of Theory and Practice, refers to a case of Raynaud's disease that behaved in a similar manner to this.

of the affected parts. The result was complete and permanent cure; the treatment was massage and the faradic current (both locally and generally). At times the pain had been so great that morphine had to be used.

On theoretical grounds we would suppose that the galvanic current would give better results than the faradic. Galvanization of the spinal cord is said to modify favorably the arterial spasm, and this was the method Raynaud himself employed.

Dr. P. Kovacs, of Berlin, has narrated a case of Raynaud's disease in the person of a young woman, twenty-one years of age, a dish-washer by occupation, who was hysterical. She presented the three main symptoms of this malady—local syncope, local asphyxia, and gangrene of her fingers—for four months. When she put her hands into cold water they turned white, later becoming blue; when she put them into hot water they turned red, and later became blue. The treatment was massage and electricity, with the wearing of gloves for warmth, and tonics internally. Almost immediate good results were obtained, and in three weeks' time both hands resumed their natural appearance, and she was advised to engage in some other occupation.[4]

I fear that there are very few physicians who know who Raynaud was when he first described this interesting affection now called by his name. And until quite recently I myself was among the majority. Maurice Raynaud was a medical student in Paris when he wrote his graduating thesis, in 1862, on this peculiar malady—dry, symmetrical gangrene. Since then numerous article of more or less value have been contributed which only serve to confirm the clinical picture and its variations as he first described them. His theory is that this disease is a neurosis characterized by great exaggeration of the excito-motor energy of the parts of the spinal cord that controls vaso-motor innervation—the posterior and lateral gray substance, according to Oppenheim. The disease in its acute form presents three marked phases—local syncope, local asphyxia or stagnation, and gangrene. In its chronic form there is a repetition of these. It usually attacks symmetrical parts of the human body—the fingers and toes, sometimes the nose and ears, less frequently the buttocks and other places. The local syncope, the pallor, the coldness, are explained by spasm of the arterioles. But it is not easy to dismiss the asphyxia by saying that it is the result of complete vaso-motor paralysis. The stagnation may be due to a venous cramp, for the veins, like the arteries, are possessed of a muscular coat which is not only regulated in tone from the vaso-motor centre, but can also be increased by reflex irritation from the periphery.[5] The studies of Dr. Charles G. Cumston[6] led him to believe that it was not necessary for the calibre of the veins to be completely obstructed in order to produce gangrene when the nutrition and vitality of the tissues have been previously lowered by constriction of the arteries.

In explanation of these phenomena, the theory that neurons act by contiguity and not by continuity would fit admirably by assuming that in the first stage, that of syncope, the projections of the neurons that preside over vaso-motor constriction have become so tightly interlocked that they cannot let go until they become completely fatigued, when they relax, lose their power of contact and simultaneously their inhibitory or restraining influence over the arterioles, thus inducing the second stage, that of asphyxia or dilatation. This theory largely the *result of my own studies*, would be consistent with the generally accepted view that dry symmetrical gangrene may arise from either central or peripheral irritation, or both, the central or peripheral ganglia or neurons acting and reacting upon each other.

In support of the central origin, symptoms of Raynaud's disease have been found in affections of the brain and spinal cord. It is said to be very frequent in the stupor which sometimes succeeds acute mania or acute confusional insanity, in paretic dementia, in melancholia, and in other affections of the brain.[7] It has frequently been found in cases of locomotor ataxia and syringomyelia, and it occassionally appears along with hysteria and epilepsy.

The peripheral origin of Raynaud's disease is inferred when it is preceded by pain, numbness, and disturbed sensations. Endoarteritis and endophlebitis are considered as secondary lesions. Though the first or second stages may appear independently of each other, often the patient has no knowledge of the malady until gangrene sets in. Hochenegg found an etiological relationship between this disease and long-continued bodily straining without sufficient pause for rest; with chlorosis in young people; and with disturbances of nutrition in consequence of acute or chronic inflammatory affections and febrile infectious diseases, such as typhus, scarlatina, measles, variola, pneumonia, intermittent fever, tuberculosis, etc.[8] Colicky pains, intermittent hemoglobinuria and angioneurotic oedema are frequent in Raynaud's disease, according to some observers.

Dr. Coleman found broken-down corpuscles in the blood of the affected fingers in a case of Raynaud's disease, but not in the blood of the others.[9] It is not yet clear how neuritis may bring gangrene, if it ever does. Besides the role the blood vessels play, there must be an indirect influence of the nerves upon the cells, causing a trophic disturbance.

As presursors of this interesting affection, Dr. Adolf Havas mentioned that it may be announced by either general or local symptoms; such as psychical alterations, depression, and feeling of anxiety; disturbances of digestion, anorexia, and vomiting; disturbances of sight and hearing, or other special sense. Locally there may be formication and furry feelings of the skin, painful pressure and feeling of stretching, hyperaesthesia, paraesthesia, and anaesthesia.[10] As these symptoms are not only found in other maladies, but also may be entirely absent, it is evident that further developments must be awaited.

Life is not directly threatened by Raynaud's disease. The exit is usually caused by other complications. Perfect recovery may be obtained when gangrene has not already sacrificed any of the parts. Dr. George E. Brewer[11] has reported the case of a patient at the New York Hospital who developed symptoms of gangrene in both feet, which progressed so rapidly that both legs had to be amputated below the knees. The case was pronounced by Dr. Joseph Collins to be one of advanced Raynaud's disease. The patient's mental condition was one of partial dementia, and he was unable to give his name or age, and no history could be obtained other than that he had been out all night and frozen his hands and feet. It was supposed that the mental stupor was due to vaso-motor disturbance of the brain similar to that which in the lower extremities produced gangrene.

In this connection the case of Dr. C. E. Riggs is of interest,[12] for it is stated that Raynaud's disease represents a neurosis which is not perfectly clear, but has its foundation in the central nervous system. The patient was sixty-four years of age, one hundred and ninety-five pounds in weight, and for two years before the doctor saw her she had suffered from attacks of numb-

ness of her fingers of half an hour's duration at a time. She was apparently well, when going up-stairs she was suddenly seized with numbness of the left hand and forearm, with loss of perception of heat and cold, and also complete paralysis of motion and sensation of the same. The hand was as white as marble. Next morning the finger-tips began to turn dark. Three days later she died. There were cardiac and renal complications. Unfortunately, the state of the pulse was not mentioned. The radial artery of the left arm was not atheromatous, and no thrombosis was discovered. Examination of the median nerve showed a simple parenchymatous degeneration; and of the spinal cord, from the fifth cervical to the sixth dorsal vertebrae, the posterior median columns showed degeneration and numerous capillary hemorrhages.

As to a diagnosis, some authors regard Raynaud's disease in a wide sense, and consider as belonging thereto all affections whose essential symptom complex shows vaso-motor and trophic disturbance without regard to their origin; while others limit the picture of this affection much more sharply, and recognize the abovementioned symptoms as Raynaud's disease only when they are without doubt caused by nervous disturbance and, in the absence of other causes, especially organic disease of the heart and blood-vessels.

Some writers suppose that erythromelalgia, or red neuralgia, is but the appearance of the second stage of Raynaud's disease without the first. A little reflection might convince one that, if there be any relationship between them, they must be different members of the same family; for erythromelalgia usually occurs in women and does not show its peculiar change of color until the limb hangs down, when the arteries throb and the pain grows worse; it is aggravated by heat and eased by cold; it is asymmetrical, and never becomes gangrenous—the opposite of what usually occurs in Raynaud's disease.

It would be quite as much to the purpose and equally wide of the mark to attempt to prove the identity of migraine and Raynaud's disease. Of two dozen articles which I have consulted as the latter, it seems to me somewhat remarkable that no one has pointed out the similarity between these two maladies, both of which present angio-neurotic phenomena much alike in the first two stages—vaso-motor constriction followed by dilatation, and often affecting vision apparently in the same way. Rosenthal narrates the case of a hysterical girl in whom the migraine began with a sensation of cold in the fingers and toes of both sides. In a little while the face became pale. After the paroxysm the hands became warm and perspired freely, and the cheeks reddened.

Both Raynaud's disease and migraine are favorably influenced by massage.

Enough has been said about treatment. It can be speedily summarized. When the local syncope and local asphyxia are slight and transient they require no treatment other than the avoidance of exposure to cold and excessive fatigue. Appropriate food and internal remedies, with plenty of fresh air for the anaemic and diabetic. Our very utmost endeavors should be used to improve the circulation, so that gangrene may not develop; and for this purpose Dr. Adolf Havas, in his article on this subject, already referred to, says *that massage and remedial movements often act in a most excellent manner, preserving the patient from future danger.* Such would certainly seem to have been the result in the first case reported in this article.

From the foregoing a few conclusions may be justifiable:

1. That when massage is of benefit in Raynaud's disease, it shows its effect very quickly.

2. These effects are improvement of the circulation, warmth, comfort, and suppleness.

3. The vitality of the tissues cannot only be maintained and improved by means of massage, but even when destruction has begun it may be entirely recovered from.

4. As the beneficial effects of massage in Raynaud's disease are of a permanent character, it must, therefore, act not only upon the vaso-motor nerves of the affected parts, but also upon their central connections in the brain and spinal cord.

5. As the symptoms of Raynaud's disease would seem to be capable of affecting suddenly or gradually the vessels of almost every part of the human body, the most varied disturbances might thus find an explanatation, whether they be sudden attacks of insanity, loss of consciousness, or asphyxia—hemoglobinuria, colicky pains, or dead fingers, etc.

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Intra-Abdominal Injections of Hypertonic Glucose Solutions in the Treatment of Peritonitis

Narat sets out from the assumption that the danger to life in peritonitis arises from the absorption which takes place. The more abundant the secretion, the better the prognosis. The limitation of the absorption and promotion of exudation are the methods of defence which the organism uses against the danger of general infection. In order to assist the organisms in trying to repress the absorption and increase exudation, experiments were carried out in rabbits with peritonitis by the injection of glucose in the peritoneal cavity. After the injection of glucose the amount of secretion is very much increased and the prognosis was found to be a good deal better.

Although large quantities of glucose were injected, blood-sugar estimations showed that sugar tolerance was not exceeded. The reasons why sugar solution was used are: (1) that sugar prevents coagulation of blood, and so in the peritoneal cavity it deprives bacteria of an excellent culture medium in the form of blood-clots; (2) it counteracts acidosis which develops following starvation and dehydration, with the resulting formation of toxic acid bodies; (3) it possesses the power to divert bacteria from the production of proteolytic enzymes and toxins; (4) sugar has a certain bactericidal power itself; (5) sugar is a food, easily assimilated and with a high nutritive value, as well as a stimulant to the mechanism of cell metabolism; (6) due to its syrup-like consistency, glucose solution is a good mechanical isolator of intestines and in this way removes the greatest obstacle of permanent drainage, the formation of adhesions.

The author concludes that from the results of the experiments it is justifiable to suggest that this treatment be used in human beings in suitable cases. About 500 c.cm. of 20 per cent glucose solution would be the proper amount to be given. The injections could be repeated through the drainage-tubes for 6 to 12 hours.—(*Ann. Surg.*, p. 357, 1923.)

Two Years of Rivanol

As a result of two years' experience with rivanol solutions in concentrations of 1:500 to 1:1000 Blass was impressed with its efficacy as a bactericide and antiseptic in superficial as well as in deeper infections without irritating the tissues. Rivanol possesses not only antiseptic power but also the property of checking granulation. At times this latter property is very desirable to prevent adhesions in joints, serous cavities or sheaths of the tendon. In other cases where the prevention of granulation is not desirable, it is possible to compensate this property by agents which stimulate granulation or by using a higher concentration of rivanol. Concentrations of 1 per cent (and higher) rivanol act stimulating on granulation and should therefore not be used in the treatment of serous cavities, joints and tendons.—(*Deutsche Med. Wschr.*, Sept. 12, 1924, 1245.)

Basedow's Disease

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There are three stages of this disease. The first is the so-called, acute stage in which we have a hyperplasia of the thyroid tissue with vascular engorgement. Histologically, the secretion is very thin and as a result of that, we have absorption of the thyroxin with poisoning.

The second stage is polyglandular. That means that the thyroid condition may be a complication of some other glandular condition, such as a disturbance of the adrenals, of the hypophysis or the thymus and others.

The third stage is theatrophic. In this there is exhaustion or disappearance of glandular secretions as a result of atrophic changes. In this stage, as in the polyglandular stage there may be acute exacerbations. The symptoms of these exacerbations may be, irritability, tremor, sweats, loss of flesh, staring and glistening eyes, sluggish intellect and melancholy.

The acute stage is the struma vascularis diffuse. In this condition the most pathognomonic feature is the presence of lymphocytosis in the blood. The run of the lymphocytosis will indicate the run of the disease. At this stage there may also be hypertrophy of the thymus, which runs hand in hand with the lymphocytosis. This condition may also become polyglandular. During this period there are changes in the bone tissue with symptoms simulating acromegalia. When the chest is fluoroscoped, we find a shadow over the trachea, which is the hypertrophied thymus. Fluoroscopy must be done sideways. In these cases *x*-ray treatment becomes indicated.

In struma nodosa, the second stage, we have in the center of the node a colloidal substance, which is poor in iodin and rich in albumin. This condition is directly affected by iodin medication; and improvement takes place. In struma nodosa, during the iodin treatment, there is danger of the condition suddenly becoming acute. It happens sometimes over night. A guide to such complications is the presence of lymphocytosis. The blood should be examined repeatedly, and if there is only a suspicion of lymphocyte increase, the iodin must be promptly discontinued.

Exophthalmus is present in only about 20 per cent of cases of Basedow's. If exophthalmus occurs it must be treated early. If treatment is begun the first or second month of the disease, we may get 50 per cent of cures. If begun later, the chances for a cure are poor. In the atrophic stage iodin should be given, preferably the tincture in ascending doses in milk. Potassium iodid is irritating to the vagus. Very little of albuminoid foods should be taken.

The treatment of exophthalmus resolves itself into three methods. First, operative; this should be done early in the disease, by a competent surgeon, so that not too much nor too little of the gland should be excised. An early operation is the surest method of treating an exophthalmus. Second, is the *x*-ray treatment. This too should be carried out early. Two sittings for the thyroid and one sitting for the thymus are required. The rays must be given in sufficiently large doses, as small doses may act as an irritant with aggravation of symptoms. The future of the treatment of Baselow's lies in the *x*-ray. Professor Brugsch reports 30 cases with 80 per cent of good results from *x*-ray treatment.

Third, is the hygienic treatment. This includes good air in high altitudes, hydrotherapy and casein and caseogan intravenously. Digitalis and caffein are contraindicated. Bromides are not of value. Little meat should be given but carbohydrates are good.

249 New York Ave.

The Physician's Library

Ichthyol: Its Use in Skin Diseases and Minor Surgery. 96 pages. New York: Merck & Co., 1924.

The arrangement of the text of this handy manual is based upon the classification of Hebra as modified by Crocker. A separate and complete chapter is devoted to each disease described and under each title is given the synonyms, diagnosis, constitutional, diatetic and local treatment. The text is clear and direct and though not wasteful of words is rich in helpful suggestions and in the number of prescription formulas scattered throughout. The findings and opinions of eminent investigators and dermatologists of many countries are presented compactly, simply and in logical sequence. The usefulness of the book is enhanced by a comprehensive bibliography. A copy of the book will be sent free upon request to the publishers.

Diabetic Manual. By Elliot P. Joslin, M.D. of Harvard Medical School. 211 pages. Philadelphia and New York: Lea & Febiger, 1924.

The third edition of this manual for physician as well as patient has been thoroughly revised and brought up to date. The author is one of the best known specialists in the treatment of diabetes in the country and anything he writes may be regarded as authoritative. The book contains a great deal of matter which must have a distinct appeal to physicians who treat diabetes as well as patients suffering therefrom.

Diabetes. By Orlando H. Petty, M.D. of University of Pennsylvania. 111 pages. Philadelphia: F. A. Davis Co., 1924.

This monograph is intended entirely for the diabetic patient. It tells of the disease, of fats which can be used, how they should be measured, how the diet should be carried on, with menus and recipes. In addition there are two chapters on insulin and how the drug can be administered at home. The book is of real value to the persons for whom it is intended.

Cosmetic Surgery. Charles C. Miller, M.D., 263 pages. Philadelphia: F. A. Davis Co., 1924.

The purpose of this book is to aid physicians in improving their knowledge of cosmetic surgery, particularly as it is utilized for correcting featural imperfections. If surgeons would pay more attention to this branch of work we believe it could be taken out of the hands of the alleged beauty doctors and given proper place in surgical procedure. The volume contains 140 illustrations, making it very easy for the surgeon to carry on this work, in the event he is not entirely familiar with details. The author operates under novocain anesthesia practically entirely and expresses satisfaction with the results.

Modern Treatment and Medical Formulary. W. B. Campbell, M.D. 693 pages. 7th edition, revised by John C. Rommel, M.D. Philadelphia: F. A. Davis Co, 1924

As long as prescription writing seems to be a lost art, it is well that books of this sort are presented for medical students as well as practitioners. The authors have combined a great deal of information in a small amount of space. They not only present formulae but give other practical information which cannot help but be of value to readers.

Maternity Nursing in a Nutshell. Elizabeth H. Wickham, R.N. 167 pages. Philadelphia: F. A. Davis Co., 1924.

The name tells the story as to the contents of this book. The subject is well discussed and the little book will be welcomed by nurses, who have not given as much time to obstetric nursing as the subject warrants.

Stedman's Medical Dictionary. Thomas L. Stedman, M. D., New York. 1146 pages with many colored plates. New York: William Wood and Company, 1924.

The eighth edition of this standard work appears with many new words and with much data that is of inestimable value to the physician. Physicians are becoming more and more dependent upon the dictionary. Even in the matter of looking up a proprietary product many men are apt to turn to those pages for a scientific description of the drug. As medical men seek to become more proficient in the preparation of scientific articles they find an added use for the dictionary. This need is splendidly filled by the book that Dr. Stedman has edited with so much ability for a period covering many years.

Organotherapy in General Practice. 250 pages. New York: G. W. Carnrick Co., 1924.

This volume forms part of the ambitious program of the Carnrick Company to acquaint the medical profession with the virtues of pluriglandular therapy. Instead of covering a particular gland, the volume takes in the entire glandular field, and presents it in a very logical way. Interest in this branch is increasing and we doubt not this book will stimulate that interest. The subject is very well presented and reflects a great deal of credit on the enterprise of the publishers.

Abdominal Fat

(Concluded from page 37)

enabled to remove two additional wedge-shaped fat-blocks. Babcock[1] recommends removal of a vertical ellipse of skin and da vertical line of closure. He alters the shape of the ellipse so as to best contour the waist and upper pelvis. In order to remove a large amount of subcutaneous fat, he widely undercuts the skin. This practice is avoided and condemned by most operators. Schepelmann[21] uses a "lyraform" incision. I have had no experience with it.

Though multiple incisions, patterning by slicing, hacking cuts, undermining of wound-edges, excision of vertical fat-blocks are not conducive to the most aesthetic and satisfactory results, they have been practised by some. For instance, Ballard removed fat and skin from above downward as well as from side to side. To quote his own words: "I removed an elliptiform piece of tissue down to the fascia extending from within three inches of the symphysis pubis and eight inches at its greatest width. I, then, removed two large V-shaped strips transversely from about the center of the perpendicular incisions."

Fat is a tissue of low vitality and special care must be taken that there be little or no accumulation of serous or sero-sanguineous fluid between or beneath the flaps. Retained wound secretions retard healing, invite infection. A drain is inserted at either end of the wound; if the wound be long, a drain may also be inserted at its center. Closure is effected by approximation sutures of silkworm-gut. For the exact apposition of the wound edges, we use linen. In these cases, I frequently advise the application of hot boric acid compresses to the operative wound for from two to three days; these fomentations are to be removed every four hours. The drains are removed as soon as the discharge warrants it and the patient is kept in bed for about fifteen days. The result of the closure should be a smooth abdomen with a linear scar[7, 13, 27] and without any hanging folds.[19] "The pendulous appearance being entirely removed and replaced by a simple large pronounced ridge."[4] Some patients during the first few post-operative days complain of abdominal tightness, of abdominal constriction.[18] It calls for no special treatment.

Summary

In suitably selected cases, the operative removal from the abdominal wall of large wedge-shaped masses of subcutaneous fat has the following advantages:

1. It is a safe and invariably beneficial surgical procedure. It has always been performed under general surgical anesthesia; never under local or spinal anesthesia.

2. It is always devoid of immediate or remote dangers to the patient; though the wound be extensive, the hemorrhage is moderate and healing is good.

3. It is simple of execution and, if unassociated with another operative procedure, the technique is easy and the performance of the operation does not consume much time. It is all important that the incisions be carried to but not beyond the fascia.

4. It may be the only operation indicated and performed in the case at hand.

5. It is, at times, called for as a preliminary operative step to facilitate intra-abdominal work and to give better access to intra-abdominal organs.

6. It is not infrequently employed in conjunction with other operations. The operator retrenches an unwieldy, useless, pendant mass of subcutaneous abdominal fat and at the same sitting brings relief to, or corrects, coexisting pathological abdominal conditions.

7. It eliminates a physical handicap, effects a marked improvement in the patient's appearance and general well-being and procures complete relief from an unsightly, painful and disabling deformity.[23]

8. It gives permanent results,[17] if post-operative instructions regarding diet and exercise are followed. Adipose tissue, when excised, never fully regenerates.

9. It secures the following benefits:

a. Diminution in weight. "At time of patient's departure from the hospital, she weighed seventy-five pounds less than at time of entrance."[5] On discharge, the loss in weight was about ninety-three pounds.[9]

b. Freedom from discomfort, local and general, and from the disability incident to cumbersome, burdensome, pendulous fatty abdomen.[12,22]

c. Improvement in the patients's general appearance, the hippopotomal abdominal wall being converted into a straight front. Improvement in pose: body is no longer awkwardly balanced and gait ceased to be waddling. Patient is enabled to resume his or her occupation.

d. Patient, after its performance, can occupy a more normal, more natural and more useful relation to society.

e. The patient can be more active, can give beter personal attention to the body, can give his or her work the necessary attention and necessary application.[7]

59 E. Madison St.

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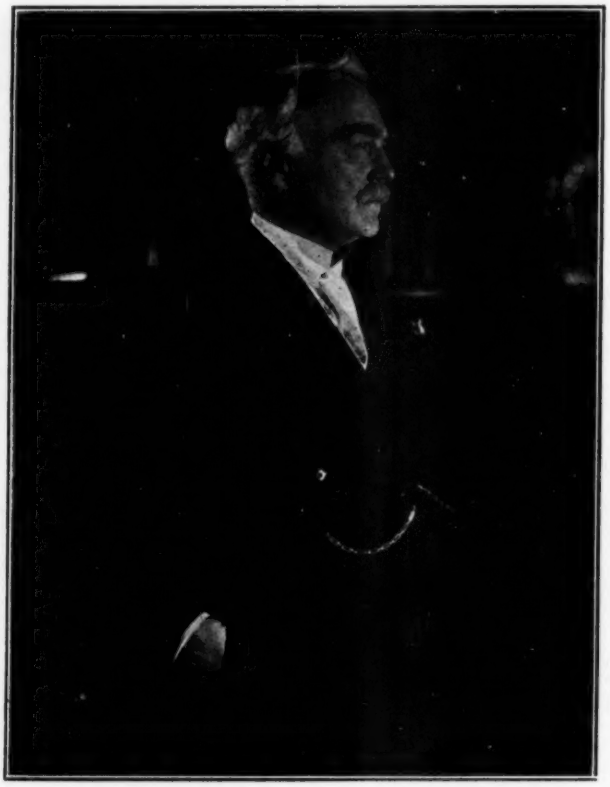
28. Weinhold: Zentralblatt fuer Gynaekologie, 1909, vol. 33, II, p. 1332.
29. Wells: American Journal of Surgery, 1916, vol. 30, p. 105.
30. Creveling: Buffalo Medical Journal, 1904-1905, vol. 44, p. 643.
31. Heineck: Personal Cases.

Doctor Clinton L. Bagg

By force of easy habit we rather materially think of a doctor as a doctor and let it go at that. We picture him as writing prescriptions at his desk or getting things ready in the operating room and following the routine of the days work. All of these things in the routine of the day's work, however, become elaborated and illuminated by the personality of the individual doctor.

What a wonderful thing is this matter of personality, ranging from the tenderness of a Shelley to the brutality of a Nero, from the gentility of a Leidy to the brusqueness of a Walpole, from the tolerance of a Saint Francis to the irritability of a Carlye.



In our profession a mid range of temperamental expression becomes the rule with the doctor of the right sort. He is brought so closely into contact with human nature in its variants that his own life arrives at a balance which allows him to measure life for himself and for others in all of its fulness.

On the 19th of September there was taken from our midst, Dr. Clinton L. Bagg, whose character was so well adjusted to this world as it is, that hundreds of people called him friend. He reciprocated by calling the hundreds friends and meaning it. It was not merely because he ministered wisely, well and feelingly as a doctor. It was because his human interest was so far flung that it gave him full sympathy and understanding of the sort which led Voltaire to say that "He who knows everything excuses everything."

His enemies were not those who are morally bound to resent mean action or underhand procedure. They were merely men whose strong and dignified opinion clashed with strong and dignified opinion—all ready to shake hands again when questions were settled.

Dr. Bagg was so free from pose and so far removed from pretense of any sort that eulogy by any one would have made him look up in surprise and distrust the eulogist. As a trusted friend of his the writer may only say that had Mr. Bagg not been a physician in all that the name implies, he would have been a naturalist—that being his original bent before moving over into medicine.

If a naturalist becomes distinguished because of clear-seeing imagination coupled with scorn for unscientific method and for theory that cannot be substantiated step by step along lines of accurate method, then Dr. Bagg would have been that sort of a naturalist. Had he been a clergyman he would have suffered little children to come unto him—as they did to him as a physician. Qualities that lead little children to men are things of the spirit.

Had Dr. Bagg been a lawyer there would have been no pettifogging and no fomenting of litigation—nothing in fact that would have prevented his peers from selecting him for judicial position in the higher councils of the law where justice and right are to prevail. All of these traits come out of heredity as well as out of environment.

Dr. Bagg's father was Benjamin Rush Bagg, a lawyer of Detroit, his paternal grandfather a physician of the same city. Both were eminent in their respective professions and held in high esteem for their public spirit. It was in that city that he was born on February 15, 1856.

It is said that great men have great mothers. Helen Merriam belonged to a family that came from Kent, England, in 1635 and that became notable in the social and religious development of Massachusetts and Connecticut. From this mother Dr. Bagg derived his first interest in the natural sciences, an interest which continued in its various points of contact between general biology, zoology, botany and ornithology in particular. The natural sciences take men afield where we all naturally belong if we are to escape the down hill slant belonging to urban life.

Dr. Bagg's devotion to professional work did not diminish his love for the big out-of-doors and as a fisherman and sportsman he made many vacation excursions into the wilds. His nearest and most devoted friends were perhaps those who shared his lust of the chase. Many were the tales of forest and of stream that were recounted by him and his friends by the camp fire and by the fireside in evenings at home.

The strong, manly personality, the courage and hardihood that go with men who love nature in a large way was exemplified in a modest statement made by Dr. Bagg to the writer who once asked about a revolver that was lying upon the office table. "Oh," he replied, "I was coming from an obstetric case in East 47th Street at about two o'clock this morning and a man held me up." . . . "Is that all of the story?" I asked. "Well, there's his revolver" was the reply. . . . "Was the fellow all alone?" . . . "No, there were two of them!"

The wide experience in general medicine which Dr. Bagg enjoyed during the first part of his forty years of practice gave him the firm foundation for his later special work in surgery. In these days of rapidly-made specialists we seldom find the surgeon with a similar background of knowledge coming out of the experience which makes for best judgment and best management

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NEW YORK, FEBRUARY, 1925

Conflicting Cancer Data

A. J. Ochsner, our distinguished Chicago confrère, has pointed out that communities which consume large quantities of home-grown vegetables are severely afflicted by cancer.

In Edinburgh, says Ochsner, the poor live on porridge and the less expensive foods and have less cancer than the rich, who can afford to eat raw vegetables.

Esquimeaux have but little cancer and of course they use no manured vegetables. There is little cancer in the tropics because excrement is not necessary as a fertilizer.

Ochsner associates the occurrence of cancer with the consumption of raw vegetables grown in soil fertilized with night-soil or barnyard manure. He believes that this is the reason why the Japanese suffer so frequently from cancer of the stomach. On the other hand, he points out, the people of India are relatively immune, because their religion obligates them to boil food and drink.

Cancer is frequently observed in low-lying districts draining higher ones, because of the greater likelihood of food contamination.

The filthiest scavengers among the animals, namely the pig, rat, barnyard fowl, dog, mouse and fish (gill contamination and gill cancer) are the most subject to cancer, whereas clean animals, like the rabbit, are practically free from the disease.

Although the Chinese boil contaminated water they suffer much from cancer of the stomach. This is because they, like the Japanese, eat much contaminated raw food, so that their water precautions go only half way and merely save them from certain acute infections.

Of all the raw foods, fruits are the least likely to figure in the causation of cancer.

Ochsner, in short, believes in the infectiousness of cancer. It is due to an organism carried by contaminated food.

One school advises us that cancer is due to vitamin starvation and counsels us to eat fresh and raw vegetable food, while the other school warns us against such recklessness.

It is an interesting contretemps.

A Striking Advance

The discovery that ultra-violet rays have the power to endow foods originally valueless against rickets with the capacity to prevent and cure that disease, is an extraordinary step forward.

Thus the vegetable oils, like olive and cottonseed, acquire through raying the same protective power as cod liver oil itself. This activity is retained by the oil for many months.

It also appears that vegetables such as green growing wheat and lettuce can be similarly endowed with protective power against rickets.

It is not claimed by Hess and Weinstock that the substance which is presumably formed in the oils and vegetables through raying is the same which is responsible for the curative value of cod liver oil. It may be the same but the fact is not established.

Streptococcic Hiccough

The isolation, by Dr. Edward C. Rosenow of the Mayo Foundation, of strains of streptococci from patients suffering from epidemic hiccoughing, throws much light upon the real nature of this *infection*.

Rosenow's work has extended over three epidemics of this affection. In the last epidemic six cases were studied and in five of the six there was an associated infection of the throat.

The diseases of obscure etiology are rapidly succumbing to those wizards of medical science compared with whom Sherlock Holmes was a crude bungler.

We believe that it would give medical men as great gratification to have the true etiology of pernicious anemia demonstrated as it would to attain to a genuine understanding of cancer.

We can depend upon our discovering geniuses finally to tear aside all these veils, dripping with so much precious blood and to flood the dark recesses behind them with healing light.

Aesthetics in American Guise

There are poems of action as well as of literature and æsthetics, and they may be creative just as truly as great works of art. This fact is lost sight of in the tendency to criticize narrowly certain activities in the medical and in the industrial scene in America. The ends attained by medical scientists and by capitalists in this country are great, creative, and, we dare to say, beautiful. But we are not thinking so much of physical things and actual achievements; we are thinking of those creative mechanisms of the mind that *result*, on the one hand, in scientific advancement, and, on the other hand, in railway systems and bridges. These creative mechanisms are the poems in action that we have in mind. It is in the doing of things that we find the art urge expressing itself. The creation of insulin is the fruit of an intellectual process just as significant from an æsthetic point of view as the writing of an ode to the nightingale, and the planning of a thing of beauty and power or utility, like the Brooklyn Bridge or a trans-

continental railway, is an expression of the spirit of art. Men of action may from this point of view be regarded as creative artists just as truly as poets and musicians. An idea that results in an aeroplane is just as æsthetic as one that produces a sonnet. It is time that we ceased harping only on the sordid string. It is just as easy to point out the unpleasant phases of the poet's life and of his creations as it is to exploit the shortcomings of the scientist and capitalist and of their material products.

Americans are constantly reproached about their materialism and their failure to give a good account of themselves in the domain of art. It is forgotten that in creating the triumphs of science and industry they are only doing many of the things—and doing them better—that Leonardo da Vinci did, for example in the domain of engineering, and the severest critic dares not withhold his admiration from da Vinci and his aims; he is not denounced as a materialist because he planned a flying machine and thought in terms of modern science (one might say American science). It has simply happened that Americans have chosen to follow certain lines in expressing themselves. The real test of a people is individualism, and of that we have almost too much. The physician who is an individual—and the medical career develops individualism above all other vocations—is himself a triumph as great as any work of pure art that can be cited. Holland is not greater than America because of her host of marvellous painters; we are just as great because of our equally marvellous scientists. As for the cult of beauty, give us the charming miracle of a sick child restored to health through the use of insulin, even before a cherub by Murillo; that is sheer beauty and nothing else.

Obscene "Cures"

The National Vigilance Committee of the Associated Advertising Clubs of the World, whose purpose is "To create maximum public confidence in advertising by making all advertising trustworthy," is doing a distinct service by giving the widest publicity to the Government's closing of the mails to the fake tuberculosis "cure" known as Heilol (formerly Haelan), exploited by the General Remedies Co., and to the "gland" treatment sponsored by the Vital-O Gland Co. The two fraud orders issued against the precious group marketing these fakes also covered a device "the mere description of which is too obscene for further repetition."

The Committee advises that advertising managers of periodicals who are offered copy exploiting purported treatments for tuberculosis, whether active or incipient, for "weak lungs," or for diseases of the respiratory tract, investigate through local public health and anti-tuberculosis agencies, or direct similar inquiries to the nearest Better Business Bureau or to the National Vigilance Committee, at 383 Madison Avenue, New York.

Every time such an advertisement appears a direct blow is struck at the confidence of all readers in advertising. The Committee aims to eradicate advertisements of this type from public print. Not one of the tuberculosis and cancer "cures" has made good on its advertising claims. The Committee points out that the effect of such copy upon the confidence of readers is ultimately fatal to all advertising, and is trying to drive home this truth to every advertiser and publisher in the country.

The banned device to which we have alluded is not a whit more obscene than the remedies in question, if we employ the word in the sense of indecent and disgusting. We are so obsessed by sex considerations that the far grosser obscenity of many things far removed from sex does not register the proper psychological response in us. The most obscene thing that we can think of is the commercial exploitation of the invalid.—THE PRACTICAL DRUGGIST.

Miscellany

Conducted by ARTHUR C. JACOBSON, M.D.

Mr. Koven in Rebuttal

Joseph Koven,
161 Columbia Heights,
Brooklyn, N. Y.
December, 21.

My Dear Doctor:

I have received a marked copy of THE MEDICAL TIMES containing your reply to my letter. Thank you for the courtesy.

Your retaliation amused me because your attitude seems so childish. I admit having wounded your vanity. Will you believe me if I say that I did not intend that? What I said was really aimed at the forces of reaction in the medical camp. It happens that, to me, you are a representative of that camp. You can readily understand that I did not attack you as an individual.

My letter was "frothy, etc.," because I am incensed at the organized attempt to hinder the progress of ERA. All other considerations aside, by what right will a physician deny a chronic sufferer the only remaining alternative to the attainment of relief when the methods of orthodox medicine have been of no avail! I have observed very many "hopeless cases" being helped and even cured by ERA. I myself have suffered for ten years, have sought relief at the hands of many physicians both here and abroad. I have been made privy to a dozen varying diagnoses and I have consumed quarts of medicine. I was very skeptical of ERA when I started taking treatments. My complete recovery is more than proof—it is conviction beyond cavil—that *ERA* is what it claims to be. Is not such a remarkable result sufficient to convince even the most skeptical?

My dear doctor, in your reply you have confused the issues. It would be too terrible to think that you did it deliberately. My faith is on the side of ERA'S pioneers and crusaders as against the backwoodsism and Saracen enmity of the orthodox majority. The cause of *ERA* is the cause of a healthier, happier humanity. My attitude—which is shared by an ever-increasing host—may be detrimental to the economic interests of most doctors but it is salutary to the interests of humanity, and so, being something of a humanitarian, I cannot choose my words, I will not conceal my anger against the enemies of *ERA* who are—through ignorance, cowardice, inertia or ulterior motives—ipso facto the enemies of mankind.

I know that you too, my dear doctor, will eventually realize the truth and you will have cause to chide yourself for having cast your lot with, and given your voice to, the cause of reaction.

My parting injunction to you is: Investigate ERA, but honestly, rationally, without prejudice and with the interests of mankind at heart. Your efforts will be rewarded!

Very truly yours,

JOSEPH KOVEN.

Influence of Salvarsan in Liver Functioning

In the Archiv. f. Derm. und Syph. Kartamischew reports that damage to the liver from salvarsan is manifested even in a few hours after the intake by an appearance of liver lipase in the serum of the blood. The action of the salvarsan when dissolved in a glucose solution is less durable than when given in distilled water. After the administration of the other drugs tested no lipase appeared in the serum. After repeated injections of salvarsan a cumulative action was apparent.—(*U & C Rev.* 28:8:491.)

Dr. C. L. Bagg

(Concluded from page 50)

in the field of surgery.

Furthermore there is seldom opportunity for development of the heart along with that of the hand that Dr. Bagg enjoyed. To him it made no difference if he was called to do a tracheotomy for a baby with diphtheria in a dimly lighted tenement room at midnight for parents who could not pay, or if the call was to some "important patient" who could command the best hospital service and pay a decent fee. Dr. Bagg was always ready for both cases at a moment's notice. Furthermore he kept a special fund out of which he paid hospital expenses and other expenses for people too poor to have necessary things. The fees that he did charge were all honest ones. The modern poltroon fee splitter would have been treated with short shrift by Dr. Bagg and then would have slunk off to find someone else to share the blood of a victim.

Dr. Bagg graduated from the University of New York Medical College in 1879. After serving an interneship at the Metropolitan Hospital he continued his association with that Institution, serving in various official capacities upon both the medical and surgical divisions, becoming senior surgeon and president of the Medical Board. At one time he was active in the affairs of Flower Hospital. He was a member of the Visiting Staff of Hahnemann Hospital and of the Community Hospital, Fellow of the American College of Surgeons and of the New York Academy of Medicine, and one of the founders of The Clinical Club. His social club membership included The Union League, Lotus, Blooming Grove and Camp Fire Clubs, the latter being his favorite.

Because of age limit he was rejected for service in the American Army in the Great War. Volunteering his services to London Hospitals he released younger British doctors for the front and was credited with being one of the few associates of Sir Arbuthnot Lane who could do his bone-plating work well.

Dr. Bagg is survived by his wife, who was Henrietta McCready. They were married at the outset of his professional life and remained inseparable companions. Whatever was enjoyed by the one was enjoyed by the other. Now that one is gone there is little left for the other excepting to enjoy in memory the fulfilment of ambition in useful living which has been shared by both.

ROBERT T. MORRIS.

114 East 54th St., N. Y.

Medicine in Ancient Egypt

(Concluded from page 31)

are four vessels for the ears, two for each. The breaths of life enter by the right ear and the breaths of death by the left. There are three vessels leading to each arm, which reach the fingers, and three for each leg which reach the sole of the foot. These are two vessels for the testicles which supply semen. There are two vessels for the rump, and four for the liver which supply moisture and air. (The specification thus proceeds with glosses, then follows a longer passage dealing with the movements of the heart itself.)

It is quite evident that the Egyptians realized the vital functions of the heart and of its importance in economy of the body. The remainder of the section deals with the effects of various forms of illness upon the heart, and indicates how from the behaviour of the heart, the seat of the trouble may be located even when it occurs in another part of the body.

The concluding section of the Ebers Papyrus deals with suppurating sores and similar maladies, and introduces surgery, to which we will refer later.

V. Materia Medica

The same difficulty confronts us when dealing with the *materia medica* as we mentioned in connection with the diseases: that is our inability to identify them. Some hundreds of ingredients are mentioned in the prescriptions, and these are of animal, vegetable, and mineral origin. Most of the animals we are able to identify, but not so the plants or animals usually it is their fat, or blood that is employed, but sometimes, if small enough, the whole animal is used. Thus we find the fat of the ox, ass, lion, hippopotamus, goat, mouse, bat, frog and snake used; and the blood of these and other animals. Hartshorn, tortoise shell, and calcinated hoofs, bones, hair and hide, are likewise employed. In the case of vegetables, either the whole plant, or its seed, leaves, fruit, root or juices are used, and numerous gums and resins.

The vehicles for liquid doses are usually water, milk, honey, wine or beer. Honey and fats of various kinds, goose-grease being specially frequent, are used for the ointments and emollients. Dry substances are to be crushed or ground. Some of the remedies are boiled, warmed, or cooled as the case may be. Ointments are usually directed to be smeared in the affected part, or more often bound on. In nearly all prescriptions where many ingredients are used a direction is given that they shall be ground up and mixed into one mass. Further directions are also given in many cases as to when and how often the dose or remedy is to be administered, and whether the patient is to lie down or assume any other specified attitude.

Milk is especially frequent, and very often we find human milk, especially the milk of a woman who has borne a male child. This feature is one of the many which survived through classical medicine to mediaeval and even modern times.

Some remedies are to be taken fasting, others before or after sleep, and others again after food.

Many of the Egyptian medicines were borrowed by the Greeks and later by the Arabs and have acquired a very wide distribution in ancient medical literature.

The quantities of each drug used were meticulously specified, and fractions of a measure, usually expressed as ¼, ⅛, 1-16, 1-32 and 1-64th part, show that considerable care was used in making up the prescriptions.

VI. The Physician

Herodotus states that all the physicians in Egypt were specialists. We have no confirmation of this, indeed the very mixed character of most of the medical papyri seems to show that they were used by general practitioners who had to be prepared to deal with any emergency. It is true, however, that these papyri are collections made from various books, and it is possible therefore that the compilers of the originals each specialized in a certain subject. The title of physician in Egypt is a very ancient one, but the office was usually held in conjunction with various other civil and priestly titles.

"Physician to the King" was an important and dignified title, and a certain Khuy whose tomb was discovered at Saggara, and who lived in the Pyramid Age is called "Royal Physician, interpreter of a difficult science." The physician was not infallible, however, for when the Pharaoh Neferkere of the Vth. dynasty sent for his physicians to attend his chief minister in his mortal illness, they consulted their books, but found that the case was beyond their powers and they "reported to his Majesty that he (the patient) was lost," and indeed in the Edwin Smith papyrus, of which we

shall presently speak, some of the cases are stated to be "an ailment which cannot be treated."

We learn from a passage in the Ebers Papyrus that the treatment of illness was in the hands of three different classes of men: the physician, the priest-magician, and the sorcerer or "charm-man."[13] The physician, we may gather, dealt with the rational therapeutic treatment; the priest-magician who was a professional magic-man, treated cases by means of incantations, and the "charm-man" by means of potent amulets and spells[14] We have as yet no evidence as to whether women played any part in the cure or treatment of sickness, although as is well known they played a prominent role in the priesthood.[15]

VII. Surgery

The earliest form of surgery known, namely the rite of circumcision, must be eliminated entirely from the domain of medicine since it is purely religious in character. An Egyptian sculpture of early date shows the performance of the operation, but beyond this mere citation we will say no more of the subject in this place[16]. Until recently all we knew of Egyptian surgery was derived from passage in the Ebers papyrus, but we now have more information on the subject. The papyrus *Edwin Smith*, which is now in the possession of the New York Historical Society, has recently been studied by Professor Breasted of Chicago, who promises a complete edition of the document. Whilst we are eagerly awaiting this publication, we are able to satisfy our curiosity to some extent from the preliminary accounts which Professor Breasted has already issued.[17]

The Edwin Smith Papyrus differs from the other papyri in that it is not a collection of prescriptions, but a handbook of practical surgery applied to wounds. It deals therefore not with remedies, but with cases. Unfortunately it is incomplete, but what remains contains 48 cases, drawn up in a far more systematic manner than the other Egyptian medical books, starting with the top of the head, and proceeding downwards as far as the thorax, where unfortunately it breaks off, and the scribe, instead of continuing his copy of it, has written out two other books on the back of the roll. These two books are (1) a series of incantations "for driving out wind in the year of pest" and (2) "the Book of Transforming an old Man into a Youth of Twenty." The medical cases, however, are full of interest and importance. The cases are all presented in a similar form:

Title. "Directions for a wound in the (part affected)."
Examination. "If you examine a man having a wound in (part affected)" and "it is (description of wound)."
Diagnosis. "You say concerning him is a man with a wound in (part affected)."
Verdict. One of the following three: (i) "It is an ailment I will treat; (ii) "It is an ailment which I will contend with"; (iii) "It is an untreatable ailment" (i. e., nothing can be done for it).
Treatment. "You must do (so and so)."
Glosses. Explanation of terms used in the foregoing examination and diagnosis.

The wounds dealt with in this papyrus are accurately described, and in each case a rational treatment is prescribed to be applied often with the direction "until he is well." In only one case is an incantation used. A detailed study of the papyrus, which will become impossible when the full text is published, will undoubtedly add much to our knowledge of ancient medicine. For instance one of the glosses puts us in possession of the Egyptian word for the temporal bone. It states "The ligaments at the back of his ramus are fixed in his *gema* they are at the back of his jaw." From this we get the equation *gema* = temporal bone. It is interesting to note that this papyrus also contained a duplicate of the book on the heart to which we have already referred, and of which yet another copy is in the *Berlin Medical Papyrus*. Professor Breasted has shown that this document deserves to be considered as a true scientific book and he draws from it the conclusion that there were men in Egypt who were interested in anatomy for its own sake, and that the belief that medicine had its origin in magic is no longer tenable. I cannot help thinking that he claims too much on the evidence of a simple document, on the very verse of which two magical books are written. It seems preferable to believe that this papyrus undoubtedly affords evidence that an attempt was being made to understand anatomy, but it must be borne in mind that it deals solely with wounds, which were palpable injuries caused by human agency, and therefore readily understood and treated by human means, instead of by the magical devices which had perforce to be used when the cause of the patients' suffering were intangible and invisible.

The glosses, however, do show that the ancient physicians had a real acquaintance with anatomy which could only have been acquired by dissection.

Reference has been made to a section of the Ebers papyrus which is surgical in character, or rather into which surgery enters. This deals with boils or tumors, and each case is introduced by the same word as is used in the Edwin Smith Papyrus, namely, "Directions," instead of the usual word "Prescription" or "Remedy." To give a consecutive translation is almost impossible, as the passage contains several words of unknown meaning, but the following is a paraphrase of one specimen.

Directions or swelling in any limb of a man. If you find a man with a swelling, cause the swelling to be bandaged and if when you press it against the underlying flesh, it throbs, then it is a case for operation with the knife. When it is opened with the knife fasten it with a skin (?) or gut (?) then remove it with the knife. There is one kind of swelling which has things in it like the snout (?) of a mouse. Remove them, and bring away the growths which adhere to the flesh on one side of it, and fasten it with gut (?) of any . . . which is like a head. And so it will be.

From this passage, crude as it is, it is quite clear that operations in simple surgery were carefully performed. The fastening-back of the edges of the newly-cut wound with a thong of some description is especially interesting. We unfortunately do not know the exact translation of the word, but it has the determination which is always used for words implying leather, skin, or the like.

Small or delicately made bronze knives with hardened edges have been found from time to time during excavations in Egypt, and these implements could scarcely have been put to any other than surgical uses, since the larger and stouter domestic utensils are also known and cannot in any way be confounded with the little scalpels to which I refer. Splints were also used for fractured limbs and several specimens have bene found. The subject was dealt with in an article contributed some years ago by Professor Elliot Smith to the *British Medical Journal* (1908, pp. 732-734).

VIII. Gynaecology

Childbirth did not come within the scope of medicine in ancient Egypt. Midwives assisted at births and washed and cut the umbilical cord of the infants, as we learn from the passage in the *Westcar Papyrus* to which reference has already been made. The *Kahun Papyrus* deals solely with disease of women. And here again in most cases the word "Directions" is used. Each case is drawn up in the same way. First the

symptoms are described, then follows the diagnosis, and finally the prescription or treatment. The ailments dealt with appear to include *dejectiones uteri, carcinoma uteri,* and various other maladies of the uterus and vagina. After these cases a series of simple prescriptions follows, and some methods of determining whether conception has taken place or not and the sex of unborn children. The latter topic is dealt with on the back of the Berlin papyrus, and some of the methods employed have survived until quite recent times.[18] The Ebers papyrus has a section dealing with diseases of women, particularly with reference to the uterus and vulva, and to promotion of the menses. Some of the remedies are to be smeared on a piece of linen and directly applied. There are also prescriptions for "bringing milk to a woman who is nursing a child." The end of this section contains two methods of ascertaining whether a new-born infant will live or die.

One of these declares that if the child on the day of his birth says *"ny"* (*"inbi* it will live, if it says *"inbi"* (no) it will die. Reference has already been made to the papyrus which contains spells for mothers and children, and from this one short quotation may be made. At the end of an incantation to drive away a complaint called *sesmi* (? bad dreams) the following words are written:

"Make this child, or his mother, eat a cooked mouse. Put the bones upon his neck bound with a string in which seven knots have been tied."

A cooked mouse as an infantile remedy has persisted from prehistoric times to the present day, and I have elsewhere collected the evidence of this remarkable custom.[19]

Conclusions

The above paragraphs will, it is hoped, convey some slight idea of the nature and practice of medicine in ancient Egypt. To do justice to the subject would require a large volume, and I have abstained from quoting any of the numerous prescriptions in the papyri, as, in order to convey an adequate idea of their purpose and kind, too great a number of quotations would have been requisite. The subject is full of interest and charm, and one of the most fascinating features of Egyptian medicine is its persistence in later literature. Much that is in the works of Dioscorides, Pliny, Galen, and other writers is directly borrowed from the Ebers papyrus and kindred books, and has been handed down by the classical authors, the mediaeval writers from whom the herbalists and writers on popular medicine in the last centuries largely drew for their material. Egyptian medical traditions were carried on by the copts after the country had become converted to Christianity, and at this stage the independently evolved Greek elements make their appearance and blend themselves with the cruder Egyptian material. This aspect of the subject I have already discussed in another journal.[20]

Hitherto practically all the study devoted to the Egyptian medical papyri has been philological. Until there appears a scholar who is both a medical man and interpreter of hieratic texts, this one-sided state of affairs is more or less inevitable. But there is a remedy—and that is to be found in the close cooperation of a medical man and an Egyptologist. If such a pair could systematically work together through all the medical material, the knowledge of one would continually throw light into the dark corners and difficulties of the other. The translator's difficulties in obscure passages would be much lessened if he had some hint of what to expect on medical grounds, and *vice versa.* Before, however, a serious beginning can be made on these lines a medical botanist with knowledge of the Ancient Egyptian language must step into the breach and identify some scores of vegetable drugs which occur, some rarely, others frequently, in the hundreds of prescriptions which the papyri have handed down to us. Hitherto, too much has been accomplished by guesswork.

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The Late Professor Adolph von Strumpell

Died January 9th, 1925, at the age of 71. He was professor of medicine at the University of Leipsic, was a distinguished

original worker in neurology, and was the author of a treatise on general medicine which was translated into English and published in the United States. Prof. von Strumpell was one of the outstanding figures in the world of medicine.

Problem of the Tonsil

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thesia to be employed in the removal of the tonsils. These are technical questions and no one can, or should, be dogmatic about them. Any method which the individual operator prefers and which removes the tonsils thoroughly, quickly and painlessly, without leaving raw edges or tonsillar tabs, and which avoids undue loss of blood, is the best method in the hands of that particular operator. Personally, I feel that these results are best obtained by using the Sluder operation or some modification of it in children under general anesthesia, and dissection and snare under local anesthesia in adults.

4. The dangers of the operation and their avoidance. As to the dangers of the operation, the same can be said of this proceedure as of any other operative interference, namely, that there is a certain amount of danger though on the whole of slight significance. If, however, the indications for removal of the tonsils are strictly and carefully made, these dangers are entirely negligible. The main dangers are: the anesthesia, hemorrhage, aspiration of infected material, and infection of the wound. All these are avoidable by paying attention to the following points:

1. Employ an experienced and careful anesthetist, using ether for general anesthesia and a weak solution of novocain or procain for local anesthesia. The novocain should be injected slowly immediately beneath the mucous membrane.

2. Do not operate during menstruation because of the danger from hemorrhage.

3. Do not operate during an attack of acute tonsillitis, or any other infectious disease of the upper respiratory tract, or during any febrile condition.

4. Determine coagulation time of blood before operation. If above 6 minutes administer calcium lactate or horse serum.

5. Use suction apparatus when giving general anesthesia.

6. If employing the dissection method, incision should be superficial and only through the mucosa, for if the incision be too deep, the capsule is opened, dissection becomes very difficult, tonsillar tissue is cut into and hemorrhage results.

7. All hemorrhage should be stopped before patient is allowed to leave the table or chair.

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superior and finds it effective clinically in all forms of tertiary syphilis.

Gaal[27] in "the treatment of syphilis with bismuth exclusively" reports four cases of from one to three years' duration in all of which lesions and a Wassermann reaction followed the treatment.

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Tuberculosis

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stating to the patient that, "a cure" has been established; for too often great dependence is put on this fictitious term and liberties are taken by the patient, which result in a relapse—often fatal.

The classification of this group was: early active pulmonary tuberculosis, 21; chronic active tuberculosis, 42; healed, 7.

Diagnosis was made upon finding the tubercle bacillus in 56 of the above 2 groups; on the remainder, 113, upon physical findings assisted by the *x*-ray tuberculin reactions and observations. While the recognition of the tubercle bacilius in the sputum possibly needs no other aid in establishing a correct diagnosis, the location, extent, and severity of the infiltrating lesion will often be ascertained by a correct interpretation of the physical, *x*-ray and observation findings.

Complications in pulmonary tuberculosis are frequent and numerous. L. Brown writes that, "blood spitting varies, according to different authorities, from 24 to 80 per cent; that neurasthenia is a frequent complication of tuberculosis; that gastric ulcer is a common complication (22 per cent) De Renzi." In the study under-nutrition and anemia were constant findings in all except the arrested. Of the above groups 13 expectorated blood and 8 had hemorrhages of the lungs. Neurasthenia was not encountered so frequent in the first group, possibly because the group was not served over a sufficient length of time, but was recorded in 14 of the second group. Gastric ulcer was diagnosed in 9 of both groups; 4 of these were operated upon for perforating gastric ulcer. Hyperthyroidism, laryngitis, arthritis, mastoiditis, valvular heart disease, pleurisy with effusion (serous), empyema, suppurative appendicitis, salpingitis, and lobar pneumonia were among other complications encountered.

Of these 2 groups the average age when diagnosed was 31 years. There were 97 females and 72 males. Brown states, "That females are less resistant than males to tuberculosis." Here attention may be called to the "dead," group of which 19 were males and 12 females.

In conclusion it is recommended that further studies of this character be made. In anticipation of such studies, every effort should be made by the physician to keep accurate and detailed case histories.

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